SITE DEVELOPMENT PLANS

FOR:

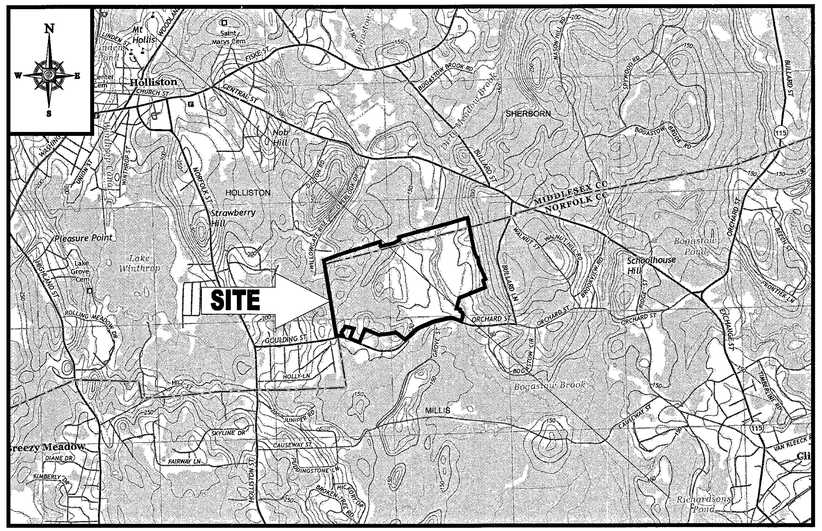
REGENCY AT GLEN ELLEN

Toll Brothers

LOCATION OF SITE:

ORCHARD STREET, TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

TOWN OF MILLIS - MAP 01, LOTS 1 - 4, 6
TOWN OF MILLIS - MAP 05, LOT 35
TOWN OF HOLLISTON - MAP 09, BLOCK 6, LOTS 95 & 104



LOCATION MAP

SCALE: 1"=2000'

PLAN REFERENCE: HOLLISTON AND MEDFIELD USGS QUADRANGLES

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PREPARED BY

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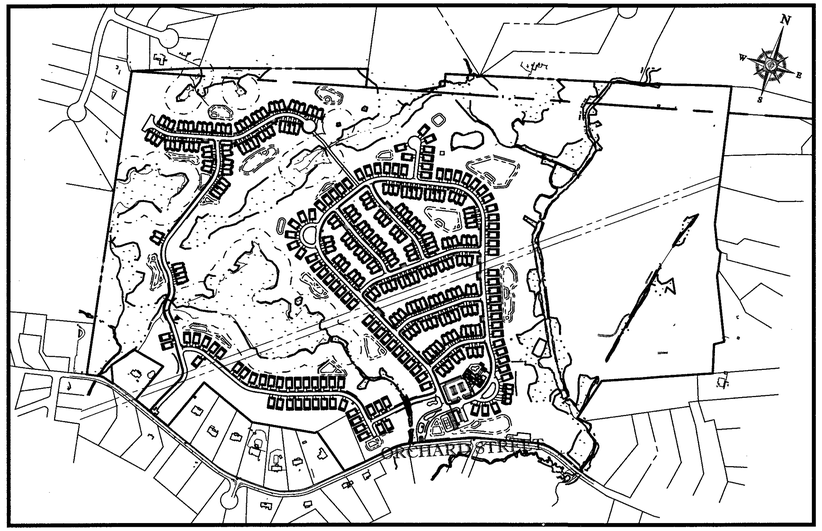

AREA PLAN

SCALE: 1"=500'

BOHLER ENGINEERING

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

- UPSTATE NEW YORK
- NEW ENGLAND
- BOSTON, MA
- NEW YORK METRO
- NEW YORK, NY
- NEW JERSEY
- PHILADELPHIA, PA
- LEHIGH VALLEY, PA
- POCONO MTNS, PA
- REHOBOTH BEACH, DE
- DOVER, DE
- BALTIMORE, MD
- NORTHERN MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RALEIGH, NC
- CHARLOTTE, NC
- TAMPA, FL
- SOUTH FLORIDA

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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WILLIAM D. GOEBEL
PROFESSIONAL ENGINEER
MASSACHUSETTS LICENSE NO. 52434
RHODE ISLAND LICENSE NO. 8012
CONNECTICUT LICENSE NO. 21084
NEW HAMPSHIRE LICENSE NO. 15280
MAINE LICENSE NO.
NEW YORK LICENSE NO. 091894-1
FLORIDA LICENSE No. 85202

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

1

OF 85

REV 5 - 08/11/2017

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GENERAL NOTES

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

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

   - "PLAN OF LAND TO ACCOMPANY ANRAD APPLICATION - PREPARED BY ESE CONSULTANTS, INC.", 04/27/16.

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

2. ALL ACCESSIBLE (AKA ADA) PARKING SPACES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF THE REQUIREMENTS OF THE "AMERICANS WITH DISABILITIES ACT" (ADA) CODE (42 U.S.C. § 12101 et seq. AND 42 U.S.C. § 4151 et seq.) OR THE REQUIREMENTS OF THE JURISDICTION WHERE THE PROJECT IS TO BE CONSTRUCTED, AND ANY AND ALL AMENDMENTS TO BOTH WHICH ARE IN EFFECT WHEN THESE PLANS ARE COMPLETED.

3. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE COMMENTS TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND CONFIRMED THAT ALL NECESSARY OR REQUIRED PERMITS HAVE BEEN OBTAINED. CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.

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

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

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

7. THESE PLANS ARE BASED ON INFORMATION PROVIDED TO BOHLER ENGINEERING BY THE OWNER AND OTHERS PRIOR TO THE TIME OF PLAN PREPARATION. CONTRACTOR MUST FIELD VERIFY EXISTING CONDITIONS AND NOTIFY BOHLER ENGINEERING, IN WRITING, IMMEDIATELY IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.

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

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

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

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

12. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY AND CONTIGUOUS STRUCTURES AND PROPERTIES.

13. THE CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.

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

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

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

17. THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY. THE ENGINEER OF RECORD HAS NOT BEEN RETAINED TO PERFORM OR BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF ENGINEER'S SERVICES AS RELATED TO THE PROJECT. THE ENGINEER OF RECORD IS NOT RESPONSIBLE TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES, AT ANY TIME.

18. ALL CONTRACTORS MUST CARRY THE SPECIFIED STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE (CGL). ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER ENGINEERING, AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AS ADDITIONAL NAMED INSURED AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THIS HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED BY THE CONTRACTORS. ALL CONTRACTORS MUST FURNISH BOHLER ENGINEERING WITH CERTIFICATIONS OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE PRIOR TO COMMENCING WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION AND FOR ONE YEAR AFTER THE COMPLETION OF CONSTRUCTION. IN ADDITION, ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS BOHLER ENGINEERING AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES, INJURIES, CLAIMS, ACTIONS, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, STATUTORY CAUSES OF ACTION, LOSSES, CAUSES OF ACTION, LIABILITIES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH OR TO THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTORS, ALL CLAIMS BY THIRD PARTIES AND ALL CLAIMS RELATED TO THE PROJECT. CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, AT LEAST THIRTY (30) DAYS PRIOR TO ANY TERMINATION, SUSPENSION OR CHANGE OF ITS INSURANCE HEREUNDER.

19. BOHLER ENGINEERING WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND/OR METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY OR LIABILITY FOR SAME HEREUNDER. BOHLER ENGINEERING'S SHOP DRAWING REVIEW WILL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM MUST NOT INDICATE THAT BOHLER ENGINEERING HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT PROMPTLY AND IMMEDIATELY BROUGHT TO ITS ATTENTION IN WRITING, BY THE CONTRACTOR. BOHLER ENGINEERING WILL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

20. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER ENGINEERING, NOR THE PRESENCE OF BOHLER ENGINEERING AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE GENERAL CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, OVERSEEING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE WITH ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER ENGINEERING AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. BOHLER ENGINEERING SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND MUST BE NAMED AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE IN NOTE 19 FOR JOB SITE SAFETY.

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

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

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

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

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

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

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

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

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

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

GENERAL GRADING & UTILITY PLAN NOTES

1. LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE INDEPENDENTLY CONFIRMED WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS MUST BE INDEPENDENTLY CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES MUST IMMEDIATELY BE REPORTED, IN WRITING, TO THE ENGINEER. CONSTRUCTION MUST COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT AND/OR DISCREPANCY BETWEEN THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE OR APPLICABLE CODES, REGULATIONS, LAWS, RULES, STATUTES AND/OR ORDINANCES, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD, IN WRITING, OF SAID CONFLICT AND/OR DISCREPANCY PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR'S FAILURE TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE CONTRACTOR'S FULL AND COMPLETE ACCEPTANCE OF ALL RESPONSIBILITY TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, STATUTES, ORDINANCES AND CODES AND, FURTHER, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAME.

4. THE CONTRACTOR MUST LOCATE AND CLEARLY AND UNAMBIGUOUSLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE AND INACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.

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

6. THE CONTRACTOR MUST INSTALL ALL STORM SEWER AND SANITARY SEWER COMPONENTS WHICH FUNCTION BY GRAVITY PRIOR TO THE INSTALLATION OF ALL OTHER UTILITIES.

7. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, GREASE TRAP REQUIREMENTS/DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE ARCHITECT WILL DETERMINE THE UTILITY SERVICE SIZES. THE CONTRACTOR MUST COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND TO ENSURE THAT PROPER DEPTHS ARE ACHIEVED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT INSTALLATION OF ALL IMPROVEMENTS COMPLIES WITH ALL REQUIREMENTS WITH JURISDICTION AND/OR CONTROL OF THE SITE, AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES AND, FURTHER, IS RESPONSIBLE FOR COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE WHERE A CONFLICT(S) EXISTS BETWEEN THESE SITE PLANS AND THE ARCHITECTURAL PLANS, OR WHERE ARCHITECTURAL PLAN UTILITY CONNECTION POINTS DIFFER, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, AND PRIOR TO CONSTRUCTION, RESOLVE SAME.

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

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

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

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

12. THE CONTRACTOR MUST COMPLY, TO THE FULLEST EXTENT, WITH THE LATEST OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES AND CONSULTANT SHALL HAVE NO RESPONSIBILITY FOR OR AS RELATED FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES.

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

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

15. DURING THE INSTALLATION OF SANITARY SEWER, STORM SEWER, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO IDENTIFY THE AS-INSTALLED LOCATIONS OF ALL UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR MUST CAREFULLY NOTE ANY INSTALLATI

N
W
E
S

MAP 9 BLOCK 6 LOT 97
N/F
TOWN OF HOLLISTON

MAP 9 BLOCK 6 LOT 69
N/F
GREGORY S. WILLIAMS
&
KYLIE A. WILLIAMS

MAP 9 BLOCK 6 LOT 68
N/F
KEVIN M. SMITH
&
CAROL A. SMITH

FOXWOOD COVE

WILLOW GATE RISE

MAP 9 BLOCK 6 LOT 64
N/F
TODD & KATE NIELSEN

MAP 9 BLOCK 6 LOT 65
N/F
DANIEL R. SERPICO
&
KATHLEEN M. WALSH

MAP 9 BLOCK 6 LOT 67
N/F
BRIAN F. KING &
JENNIFER KIRKPATRICK

MAP 9 BLOCK 6 LOT 66
N/F
SUSAN S. WILLIAMS

MAP 9 BLOCK 6 LOT 63
N/F
RANDALL A. PERKINS

MAP 9 BLOCK 6 LOT 62
N/F
BENEDETTO A. MIELE, JR
&
PATRICIA A. MIELE

MAP 9 BLOCK 6 LOT 61
N/F
JEFFREY C. HASTIE
&
ANGELA C. HASTIE

MAP 6 BLOCK 2 LOT 87
N/F
JOSEPH P. TEXEIRA
&
PATRICIA TEXEIRA

MAP 6 BLOCK 2 LOT 90
N/F
DONALD LUNNY
&
KATHLEEN M. LUNNY

MAP 6 BLOCK 2 LOT 89
N/F
JOHN H. KOSIAN
&
ANITA McFADDEN

MAP 6 BLOCK 2 LOT 17A
N/F
WILLIAM C. HARRINGTON
&
DIANA R. HARRINGTON

MAP 6 BLOCK 2 LOT 17E
N/F
TOWN OF HOLLISTON

6-2-17C
N/F
EVAN J. KUTCHER
&
MIRIAM E. KUTCHER

6-2-17B
N/F
DAVID J. ALLEN
&
MELINDA ALLEN

6-3-75
N/F
DENNIS SEROCKI

6-3-59
N/F
JUSTIN E. KEITH
&
ANN WILLER

MAP 6 BLOCK 3 LOT 40
N/F
EDWARD & SANDRA MASCOLL

MAP 6 BLOCK 3 LOT 39
N/F
GREGORY M. DOHERTY
&
CAROL A. DOHERTY

MAP 6 BLOCK 3 LOT 38
N/F
MARGARET BERGMAN

MAP 6 BLOCK 3 LOT 37
N/F
PAUL & LEILA McGUIRE

MAP 5 LOT 1
N/F
EDWARD M. SCHAFFER
&
VIRGINIA L. SCHAFFER

MAP 5 LOT 9
N/F
JOHN W. FARRELL
&
BRENDA J. FARRELL

MAP 5 LOT 10
N/F
JOHN J. DILLON, TRUSTEE
&
TALL OAKS FARM REALTY TRUST

MAP 5 LOT 11
N/F
RICHARD W. SWINIMER
&
JOAN H. SWINIMER

MAP 5 LOT 26
N/F
PAUL A. TOPHAM
&
JEANNE M. TOPHAM

MAP 5 LOT 36
N/F
ALAN PARR
&
ANNE E. PARR

MAP 5 LOT 2
N/F
ANDREW F. KRAMER, TRUSTEE
1 GLEN PINES WAY
REALTY TRUST

MAP 1 LOT 5
N/F
KAMIL ATOCHI
&
DANIELLE ADAMI

MAP 5 LOT 28
N/F
JAMES R. MURRAY
&
MINDY SHEFTS MURRAY

MAP 5 LOT 29
N/F
ALVIN D. CROCCO
&
JACQUELYN A. CROCCO

MAP 5 LOT 30
N/F
STEPHEN M. BOSTON
&
SUSAN SHAPIRO BOSTON

MAP 5 LOT 31
N/F
THOMAS M. ROCHE
&
DONNA J. ROCHE

MAP 5 LOT 32
N/F
LUKE P. OSTROWSKI
&
LOUISA M. N. THOMASON

MAP 5 LOT 33
N/F
STEVEN WORTHINGTON
&
MARTHA WORTHINGTON

MAP 5 LOT 34
N/F
ROBERT W. HUBBELL
&
KELLYANN HUBBELL

MAP 5 LOT 12
N/F
RAYMOND M. TOCCI
&
KATHY L. TOCCI

MAP 5 LOT 13
N/F
JAMES C. KIBB

MAP 5 LOT 14
N/F
JOSEPH A. HINCKLEY
&
CAROL K. HINCKLEY

MAP 5 LOT 15
N/F
JAMES HURLEY
&
LISA HURLEY

MAP 5 LOT 16
N/F
DUNKEBIER ENTERPRISES INC.

MAP 5 LOT 17
N/F
TOWN OF MILLIS

MAP 5 LOT 18
N/F
RICHARD VAUTOUR
&
CLAUDIA H. VAUTOUR

MAP 6 LOT 6
N/F
ROBERT R. GRACI
&
JACQUELINE F. GRACI
C/O ROBERT R. & JACQUELINE F. GRACI

MAP6 LOT 29
N/F
ALFRED J. ODOARI
&
PHOEBE S. ODOARDI, TR
&
ODOARDI REAL ESTATE TRUST

MAP6 LOT 28
N/F
DANIEL W. HARP
&
DELANA B. HARP

MAP 5 LOT 35

MAP 1 LOT 1

MAP 1 LOT 2

MAP 1 LOT 3

MAP 1 LOT 4

MAP 9 BLOCK 6 LOT 95

MAP 9 BLOCK 6 LOT 96
N/F
TOWN OF HOLLISTON

MAP 9 BLOCK 6 LOT 98
N/F
LAWRENCE T. PISAPIO
&
GAIL M. PISAPIO

MAP 9 BLOCK 6 LOT 72
N/F
ELIZABETH A. CASAVANT

MAP 9 BLOCK 6 LOT 73
N/F
LAWRENCE T. &
GAIL M. PISAPIO

MAP 9 BLOCK 6 LOT 74
N/F
EDWARD G. ROCHE
&
DENISE M. NICOLE ROCHE

MAP 9 BLOCK 6 LOT 102
N/F
BULLARD MEMORIAL FARM ASSOCIATION

MAP 9 BLOCK 6 LOT 104

MAP 9 BLOCK 6 LOT 103
N/F
BRIAN L. CORBETT
&
KERRY CORBETT

MAP 2 LOT 1
N/F
ROCHE'S BUILDING CO INC

MAP 2 LOT 7
N/F
MARK E. STERLING

MAP 2 LOT 2
N/F
LOIS WILLIAMSON

MAP 2 LOT 4
N/F
TODD D. BURNS
&
ALEXANDRA T. BURNS

MAP 2 LOT 6
N/F
RICHARD A. SPADA
&
MARGARET M. SPADA

MAP 2 LOT 5
N/F
STEPHEN D. BAKER

MAP 2 LOT 14
N/F
ESTATE OF ELIZABETH LUTTGE

MAP 6 LOT 1
N/F
AMIR A. ELMEGED
&
NORA JOSEPH QUADROS

MAP 6 LOT 10
N/F
DANIEL C. NISSI
&
JENNIFER K. NISSI

MAP 6 LOT 16
N/F
BRIAN TETREAULT
&
NADINE TETREAULT

MAP 6 LOT 9
N/F
ROBERT F. FASANELLO
&
MARLAINE V. FASANELLO

MAP 6 LOT 12
N/F
JOHN G. KATINGER
&
LYNNE E. KATINGER

MAP 6 LOT 14
N/F
LEO J. ACERRA

MAP 6 LOT 15
N/F
ROBERT M. VEANER
&
AMY S. VEANER

MAP 6 LOT 11
N/F
ROBERT F. FASANELLO
&
MARLAINE V. FASANELLO

MAP 6 LOT 13
N/F
RICHARD WALUNAS
&
CHERYL WALUNAS

WETLAND E
AREA = 0.013 AC.

WETLAND H
AREA = 1.26 AC.

WETLAND F
AREA = 1.64 AC.

WETLAND E
AREA = 8.80 AC.

WETLAND A
AREA = 8.54 AC.

WETLANDS J & L
AREA = 6.78 AC.

WETLANDS K & CC
AREA = 0.5 AC.

WETLAND AA
AREA = 0.042 AC.

WETLAND BB
AREA = 0.063 AC.

WETLAND DD
AREA = 0.26 AC.

WETLAND R
AREA = 0.84 AC.

WETLANDS R & Q
AREA = 0.52 AC.

WETLANDS O, T, & M
AREA = 4.1 AC.

50' WETLAND BUFFER
100' WETLAND BUFFER

APPROX. 100' PERIMETER BUFFER

100' VERNAL POOL BUFFER

DEP ZONE II

EXISTING IRRIGATION POND

APPROX. EXISTING 200' RIVERFRONT AREA
C/O CORCORAN JENNISON COMPANY INC

APPROX. EXISTING ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT

EXISTING CLUB HOUSE

BENCHMARK
SE. COR. CONC. PAD
ELEV=156.38(NAVD88)

BENCHMARK
CONCRETE/ BOUND/ON
ELEV= 58.97(NAVD88)

BENCHMARK
SPIKE IN UTP 111
ELEV=115.91(NAVD88)

GOULDING STREET

TRACY LYNN ROAD

WHEELER LANE

ORCHARD STREET

GLENN PINES WAY

GROVE STREET

200 100 50 0 200
1"= 200

811
Know what's below.
Call before you dig.

P:\W\W161041\Drawings\Plan Sets\Residential\REC\SWW161041_ps5.dwg, 03-Existing, 10/6/2014, 4:28:00 PM, jtec, Xerox5315-1.pc3, Used=54, 1:1

BOHLER ENGINEERING
SITE/CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
LANDSCAPE ARCHITECTURE
SUSTAINABLE DEVELOPMENT CONSULTING
PROGRAM MANAGEMENT
TRANSPORTATION SERVICES

- PHILADELPHIA, PA
- LEHIGH VALLEY, PA
- SOUTH JERSEY, NJ
- RED BANK, NJ
- NEW YORK METRO
- NEW YORK, NY
- NEW JERSEY
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RICHMOND, VA
- CHARLOTTE, NC
- RALEIGH, NC
- TAMPA, FL
- SARASOTA, FL
- SALTMORE, MD
- BALTIMORE, MARYLAND

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

W.D. GOEBEL
COMMONWEALTH OF MASSACHUSETTS
WILLIAM D. GOEBEL
PROFESSIONAL ENGINEER
MASSACHUSETTS LICENSE NO. 44644
RHODE ISLAND LICENSE NO. 7135
CONNECTICUT LICENSE NO. 24564
NEW YORK STATE LICENSE NO. 102030
COMMONWEALTH OF VIRGINIA
NEW YORK PROFESSIONAL ENGINEER NO. 071264-1
FLORIDA LICENSE NO. 85202

SHEET TITLE:
OVERALL EXISTING CONDITIONS

SHEET NUMBER:
3
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR DEMOLITION/ REMOVAL PURPOSES ONLY

N W E S

SB /FND

CB /DH FND

BENCHMARK
SE COR. CONC. PAD
ELEV=156.38(NAVD88)

BENCHMARK
CONCRETE BOUND W/DH
ELEV=156.97(NAVD88)

BENCHMARK
SCRIVE IN UTP 111
ELEV=140.82(NAVD88)

ALGONQUIN GAS TRANSMISSION COMPANY
EASEMENT (APPROX) TO REMAIN

REFER TO GENERAL NOTES SHEET FOR DEMOLITION NOTES

BOULDERS IN EXCESS OF 20 CUBIC YARDS, TREES, STUMPS, DEMOLITION OR CONSTRUCTION WASTE SHALL NOT BE BURIED ON-SITE AND SHALL BE DISPOSED OF IN ACCORDANCE WITH THE APPLICABLE REGULATIONS GOVERNING SAME.

ALL STRUCTURES AND LANDSCAPING OUTSIDE LIMIT OF WORK TO REMAIN UNLESS OTHERWISE NOTED.

CONTRACTOR TO CUT AND CAP ALL UNDERGROUND UTILITIES IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND FEDERAL REGULATIONS. CONTRACTOR TO COORDINATE ALL DISCONNECTS WITH UTILITY PROVIDERS.

150 75 37.5 0 150
1"= 150'

811 Know what's below. Call before you dig.

P:\18\W161041\Drawings\Plan Set\Resident\ai\RES\XMREF-Survey_ss5.dwg, 04 - Demo-A, 10/6/2014, 4:26:09 PM, jack, Xerox5151-1 pc3, UserIDA, 1:0.999999997

BOHLER ENGINEERING

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

NEW ENGLAND
◆ BOSTON, MA
◆ PROVIDENCE, RI
◆ NEW YORK, NY
◆ NEW JERSEY

◆ LEHIGH VALLEY, PA
◆ SOUTHEASTERN, PA
◆ PITTSBURGH, PA METRO
◆ BALTIMORE, MD
◆ SOUTHERN MARYLAND

◆ RALEIGH, NC
◆ CHARLOTTE, NC
◆ TAMPA, FL
◆ SOUTH FLORIDA

◆ AUSTIN, TX
◆ CENTRAL VIRGINIA

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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11			
12			
13			
14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	XREF-SURVEY_SS5

PROJECT:

SITE DEVELOPMENT PLANS

—FOR—

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

W.D. GOEBEL
COMMONWEALTH OF MASSACHUSETTS
PROFESSIONAL ENGINEER
MASSACHUSETTS LICENSE NO. 34564
RHODE ISLAND LICENSE NO. 9782
CONNECTICUT LICENSE NO. 21424
NEW HAMPSHIRE LICENSE NO. 20230
MAINE LICENSE NO. 2100
NEW YORK LICENSE NO. 121284-1
FLORIDA LICENSE NO. 85202

SHEET TITLE:

DEMOLITION PLAN A

SHEET NUMBER:

4

OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR DEMOLITION/ REMOVAL PURPOSES ONLY

N W E S

SEPTIC TANK (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
PUMP STATION (TBR) (TYP.)
TENNIS COURT SAS SYSTEMS (4 TBR) (TYP.)
VOLLEYBALL COURTS AND ASSOCIATED APPURTENANCES (TBR)
ASPHALT WALK (TBR) (TYP).
MAP 1 LOT 3
EXISTING PROPANE TANKS AND PAD (TBR)
EXISTING FENCE (TBR)
TEMPORARY DEMO. FENCE (TYP.)
BURIED DISTRIBUTION BOX (TBR) (TYP.)
TENNIS COURTS AND ASSOCIATED APPURTENANCES (TBR)
EXISTING FENCE (TBR)
EXISTING GATE (TBR)
PUMP CHAMBER (TBR) (TYP.)
GREASE TRAP MANHOLES (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
PUMP STATION (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
EXISTING DUMPSTER PAD (TBR)
EXISTING FLAG POLE (TBR)
ASPHALT PAVEMENT (TBR)
EXISTING TREES (TBR)(TYP.)
ASPHALT PAVEMENT (TBR)
EXISTING TREES (TBR)(TYP.)
EXISTING HYDRANT (TBR)
EXISTING TREES (TBR)(TYP.)
PAVILION SAS SYSTEM (TBR) (TYP.)
EXISTING STRUCTURES (TBR)(TYP.)
DISTRIBUTION BOX (TBR) (TYP.)
TENT (TBR)
ASPHALT WALK (TBR)
EDGE OF TREES (TO REMAIN)
BRIDGE CROSSING
0-53 BORDERING VEGETATED WETLANDS
0-54
0-56
0-55
065-2
0-57
065-1
0-60
065-3
0-61
0-65
065-4
0-62
0-66
0-67
APPROX. LOCATION OF EXISTING IRRIGATION WELL (TO BE REUSED AND MAINTAINED)
ZONE AE
0-63
0-64
0-68
0-69
TEMPORARY DEMO. FENCE (TYP.)
WETLANDS Q, 7, & M AREA = 4.1 AC.
0-70
0-71
0-71-1
0-71-2
0-72
0-71-4
0-71-5
0-71-6
0-71-3
(BFE 143)
DEMOLITION PLAN PAGE # 6
PLEASE SEE DEMOLITION PAGE #6 FOR MORE DETAIL
TENT (TBR)
ISTING FENCE (TBR)
POOL (TBR) CONTRACTOR TO REMOVE FOUNDATION, AND ASSOCIATED MATERIALS AND/OR DEBRIS IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. (TBR)
CONCRETE PAVEMENT (TBR)
EXISTING FENCE (TBR)
EXISTING INT. STREAM (APPROX.)
EDGE OF WOODS (TO REMAIN)
EDGE OF WOODS (TBR)
EXISTING FENCE (TBR)
CONTRACTOR TO REMOVE BUILDING, FOUNDATION, AND ASSOCIATED MATERIALS AND/OR DEBRIS IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
EXISTING TREES (TBR)(TYP.)
EXISTING SIGNS (TBR)(TYP.)
EXISTING SIGNS (TBR)(TYP.)
CLEANOUT MANHOLE (TBR) (TYP.)
SEPTIC TANK (TBR) (TYP.)
SEPTIC TANK (TBR) (TYP.)
POOL (TBR)
TENT (TBR)
TENT (TBR)
SAN. MH (TBR) (TYP.)
EXISTING UTILITY POLE (TBR) (TYP.)
DOSING CHAMBER (TBR) (TYP.)
MH STRUCTURE (TBR) (TYP.)
HYDRANT (TBR)
ASPHALT PAVEMENT (TBR)
DISTRIBUTION BOX (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
POOL SAS SYSTEM (TBR) (TYP.)
DOSING CHAMBER (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
EXISTING TREES (TBR)
EXISTING TREES (TBR)
EXISTING UTILITY POLE (TBR) (TYP.)
SAN. MH (TBR) (TYP.)
EXISTING UTILITY POLE (TBR) (TYP.)
BAYSTATE SAS SYSTEM (TBR) (TYP.)
EXISTING FENCE (TBR)
RESIDENCE SAS SYSTEM (TBR) (TYP.)
BUILDING (TBR)
ASPHALT WALK (TO REMAIN)
DISTRIBUTION BOX (TBR) (TYP.)
EDGE OF TREES (TBR)
SEPTIC TANK (TBR) (TYP.)
200' RIVERFRONT AREA
EXISTING MH STRUCTURE (TBR)
EXISTING SIGN (TBR)
ASPHALT CURB (TBR)
ASPHALT CURB (TBR)
BENCHMARK SPIKE IN UTP 111 ELEV=145.61(NAVD88)
EXISTING FENCE (TO REMAIN)
ORCHARD ST
EXISTING FENCE (TO REMAIN)
TEMPORARY DEMO. FENCE (TYP.)
APPROX LIMIT OF WORK (TYP).
12" RCI PIPE
EXISTING INT. STREAM (APPROX.)
EDGE OF WOODS (TBR)
EDGE OF WOODS (TO REMAIN)
DEMOLITION PLAN PAGE # 6
DEMOLITION PLAN PAGE # 6
MAP 5 LOT 17 N/F TOWN OF MILLIS
MAP 6 LOT 6 N/F ROBERT R. GRACI & JACQUELINE A. GRACI
REFER TO GENERAL NOTES SHEET FOR DEMOLITION NOTES
40 20 10 0 40
1"= 40'

811 Know what's below. Call before you dig.

P:\161041\Drawings\Plan Sets\Residential\RECVSXREF-Survey_ss5.dwg, 05 - Demo-B, 10/5/2014 4:29:00 PM, jlao, XeroxS151-1.pc3, User534, 1.0.99999997

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◆ NEW ENGLAND
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◆ ROCHESTER, NY
◆ NEW YORK, NY
◆ NEW JERSEY
◆ CONNECTICUT
◆ RHODE ISLAND
◆ DELAWARE
◆ MAINE
◆ NEW YORK
◆ WESTCHESTER
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3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	XREF-SURVEY_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

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SHEET TITLE:

DEMOLITION PLAN A

SHEET NUMBER:

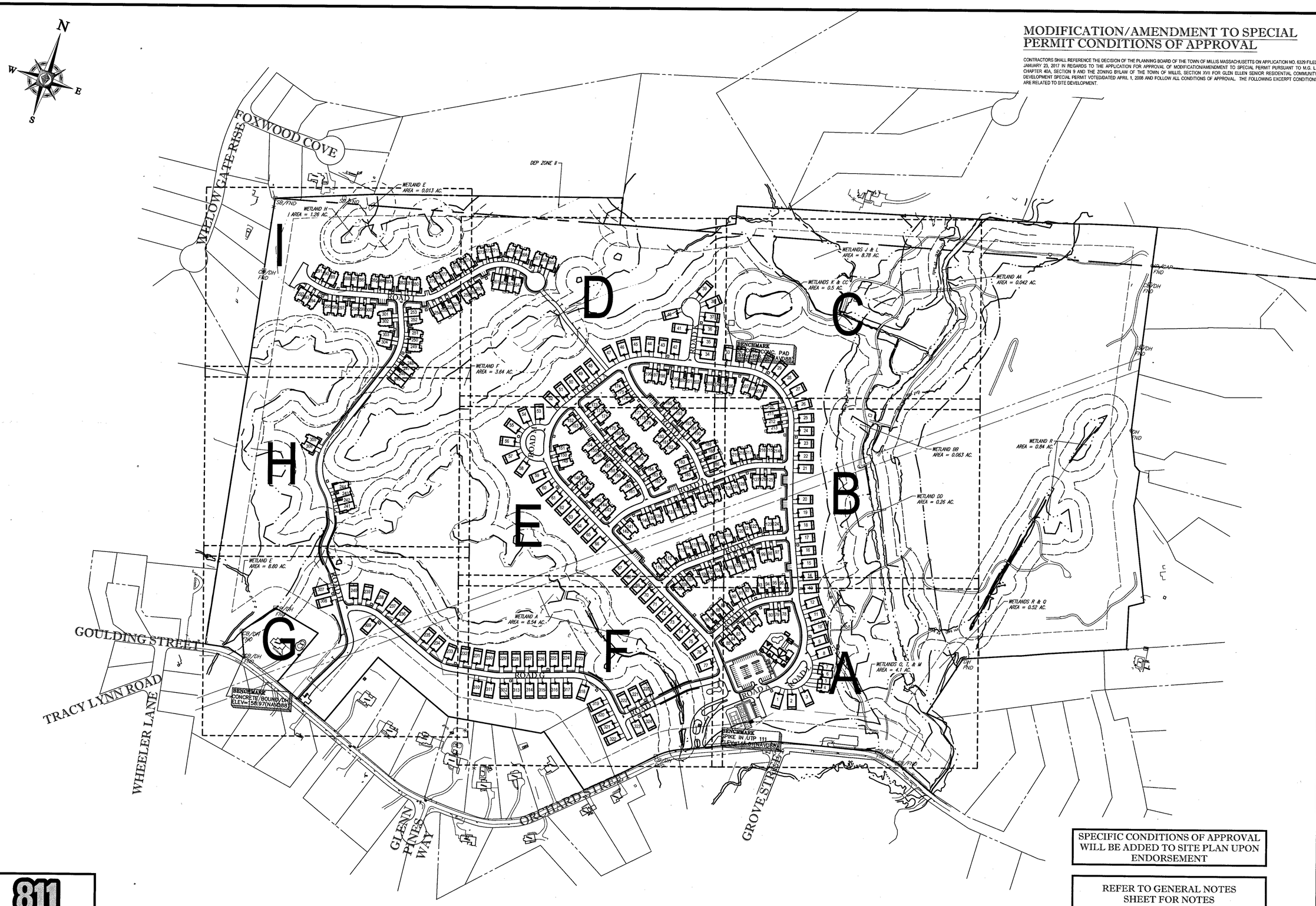
5

OF 85

REV 5 - 08/11/2017

MODIFICATION/AMENDMENT TO SPECIAL PERMIT CONDITIONS OF APPROVAL

CONTRACTORS SHALL REFERENCE THE DECISION OF THE PLANNING BOARD OF THE TOWN OF MILLIS MASSACHUSETTS ON APPLICATION NO. 6329 FILED JANUARY 23, 2017 IN REGARDS TO THE APPLICATION FOR APPROVAL OF MODIFICATION/AMENDMENT TO SPECIAL PERMIT PURSUANT TO M.G. L. CHAPTER 40A, SECTION 9 AND THE ZONING BYLAW OF THE TOWN OF MILLIS, SECTION XVII FOR GLEN ELLEN SENIOR RESIDENTIAL COMMUNITY DEVELOPMENT SPECIAL PERMIT VOTEDIDATED APRIL 1, 2008 AND FOLLOW ALL CONDITIONS OF APPROVAL. THE FOLLOWING EXCERPT CONDITIONS ARE RELATED TO SITE DEVELOPMENT.



811
Know what's below.
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SPECIFIC CONDITIONS OF APPROVAL WILL BE ADDED TO SITE PLAN UPON ENDORSEMENT

REFER TO GENERAL NOTES SHEET FOR NOTES

200 100 50 0 200
1"= 200'

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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
OVERALL SITE PLAN & SHEET INDEX

SHEET NUMBER:
6
OF 85

REV 5 - 08/11/2017

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THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

MATCH LINE - SHEETS A/B

MATCH LINE - SHEETS A/F

ROAD A STA 39+75.78 = ROAD B STA 4+80.56

ROAD A STA 3+29.15 = ROAD A STA 48+61.84

ROAD A STA 5+48.49 = ROAD L STA 0+00.00

ROAD A STA 7+45.53 = ROAD L STA 2+96.54

PROP. LIMIT OF WORK

50.0' WETLAND BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

PROP. RETAINING WALL (SEE DESIGN PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIRED WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

APPROX. LOCATION OF EXISTING IRRIGATION WELL (TO BE REUSED AND MAINTAINED)

PROP. CURB CUT (TYP.) SEE DETAIL

PROP. "STOP" SIGN AND STOP BAR

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. CLUB HOUS.. (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. OUTDOOR SWIMMING POOL (SEE PLANS PREPARED BY OTHERS)

PROP. POOL MECHANICAL STRUCTURE (SEE PLANS PREPARED BY OTHERS)

PROP. OUTDOOR KITCHEN (SEE PLANS PREPARED BY OTHERS)

PROP. DETECTABLE WARNING STRIP (TYP.)

PROP. TENNIS COURT (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. SHUFFLEBOARD (SEE PLANS PREPARED BY OTHERS)

PROP. BOCCE COURT (SEE PLANS PREPARED BY OTHERS)

PROP. STORAGE (SEE PLANS PREPARED BY OTHERS)

PROP. BASIN ACCESS ROUTE

PROP. BASIN #1

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. TRAIL ACCESS GRAVEL PARKING LOT

APPROX. 100' PERIMETER BUFFER

250.0' RIVERFRONT AREA

MAIN SITE DRIVE SITE DISTANCE (TYP.)

ORCHARD STREET

ROAD A

ROAD B

ROAD L

CB/DH FND

CB/FND

DH FND

40 20 10 0 40
1" = 40'

811
Know what's below.
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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

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SHEET TITLE:

SITE PLAN A

SHEET NUMBER:

7 OF 85

REV 5 - 08/11/2017

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N

W E

S

MATCH LINE - SHEETS B/C

MATCH LINE - SHEETS B/E

MATCH LINE - SHEETS A/B

PROP. BASIN #8

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BASIN ACCESS ROUTE

3.5' GRASS STRIP (TYP.)

ROAD A

ROAD D

ROAD C

ROAD A STA 15+29.47 = STA 9+49.09

ROAD D STA 8+50.00

ROAD A STA 12+95.78 = STA 6+86.65

ROAD C

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. "STOP" SIGN AND STOP BAR

PROP. CURB CUT (TYP.) SEE DETAIL

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. DETECTABLE WARNING STRIP (TYP.)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. BASIN #2

PROP. LIMIT OF WORK

APPROX. BOTTUM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

EXISTING CROSSINGS TO REMAIN FOR IRRIGATION WELL AND OPEN SPACE MAINTENANCE

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX)

50.0' EXISTING GAS EASEMENT

200.0' RIVERFRONT AREA

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

20' MIN (TYP.)

26.0' (TYP.)

24.0'R

28.0' (TYP.)

5.0'

3.5' GRASS STRIP (TYP.)

21.0'(TYP.)

1034.0'R

313.0'R

287.0'R

213.0'R

197.0'R

40 20 10 0 40

1"= 40'

811 Know what's below. Call before you dig.

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REV	DATE	COMMENT	BY
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3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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FLORIDA LICENSE No. 86202

SHEET TITLE:

SITE PLAN B

SHEET NUMBER:

8 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

HOLLISTON

MILLIS

APPROX. 100' PERIMETER BUFFER

MATCH LINE - SHEETS C/D

MATCH LINE - SHEETS B/C

PROP. BASIN #4

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

ACCESS PATH FOR WELL AND OPEN SPACE MAINTENANCE TO BE MAINTAINED

APPROX. LOCATION OF EXISTING IRRIGATION WELL (TO BE REUSED AND MAINTAINED)

ACCESS PATH FOR WELL AND OPEN SPACE MAINTENANCE TO BE MAINTAINED

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING CROSSINGS TO REMAIN FOR IRRIGATION WELL AND OPEN SPACE MAINTENANCE

ZONE AE (BFE 144)

EXISTING WETLANDS (TYP.) (DELINEATED BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

APPROX. LOCATION OF EXISTING IRRIGATION WELL (TO BE REUSED AND MAINTAINED) 2

100' WETLAND BUFFER

50' WETLAND BUFFER

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. BASIN #3

APPROX. LIMIT OF PROP. DETENTION BASIN (TYP.)

PROP. LIMIT OF WORK

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. CURB CUT (TYP.) SEE DETAIL

PROP. BASIN ACCESS ROUTE

200' RIVERFRONT AREA

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

3.5' GRASS STRIP (TYP.)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

ROAD A

40 20 10 0 40

1"= 40'

811 Know what's below. Call before you dig.

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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
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DATE:	11/18/2016
SCALE:	AS NOTED
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PROJECT:

SITE DEVELOPMENT PLANS FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

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FLORIDA LICENSE NO. 66202

SHEET TITLE:

SITE PLAN C

SHEET NUMBER:

9 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

1"= 40'

HOLLISTON

MILLIS

MATCH LINE - SHEETS D/I

MATCH LINE - SHEETS D/E

MATCH LINE - SHEETS C/D

APPROX. 100' PERIMETER BUFFER

DEP ZONE II

PROP. BASIN #18

PROP. BASIN ACCESS ROUTE

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. BELGIAN BLOCK CURB (TYP.)

ROAD I

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. RETAINING WALL (SEE DESIGN BY OTHERS)

PROP. 4' CHAIN LINK FENCE (TYP.)

PROP. CURB CUT (TYP.) SEE DETAIL

100' VERNAL POOL BUFFER

100' WETLAND BUFFER

50' WETLAND BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

PROP. REINFORCED TURF EMERGENCY ACCESS DRIVEWAY

PROP. WOOD GUIDE RAIL (TYP.)

PROP. EMERGENCY ACCESS CULVERT REPLACEMENT (SEE DETAILS)

EMERGENCY ACCESS

PROP. REINFORCED TURF EMERGENCY ACCESS

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

PROP. BASIN #6

PROP. BASIN #5

PROP. BASIN #15

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. LIMIT OF WORK

PROP. BASIN ACCESS ROUTE

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. BASIN ACCESS ROUTE

ROAD K

PROP. CURB CUT (TYP.) SEE DETAIL

PROP. "STOP" SIGN AND STOP BAR

ROAD A STA 24+54.13 = STA 0+00.00

PROP. BELGIAN BLOCK CURB (TYP.)

ROAD A

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. "STOP" SIGN AND STOP BAR

ROAD A STA 27+80.86 = STA 0+00.00

ROAD F

ROAD A STA 33+81.59 = STA 0+00.00

ROAD F

PROP. DETECTABLE WARNING STRIP (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

3.5' GRASS STRIP (TYP.)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. CURB CUT (TYP.) SEE DETAIL

PROP. "STOP" SIGN AND STOP BAR

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. 100' PERIMETER BUFFER

100' WETLAND BUFFER

50' WETLAND BUFFER

100' VERNAL POOL BUFFER

811 Know what's below. Call before you dig.

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

W.D. GOEBEL
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WILLIAM D. GOEBEL
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REGISTERED PROFESSIONAL ENGINEER
MASSACHUSETTS LICENSE No. 37684
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NEW HAMPSHIRE LICENSE No. 10295
MAINE LICENSE No. 9490
NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE No. 85202

SHEET TITLE:

SITE PLAN D

SHEET NUMBER:

10 OF 85

REV 5 - 08/11/2017

N
W
E
S

MATCH LINE - SHEETS D/E

MATCH LINE - SHEETS E/H

MATCH LINE - SHEETS E/F

MATCH LINE - SHEETS B/E

ROAD A STA 30+81.59 = ROAD E STA 0+00.00

ROAD A STA 32+55.91 = ROAD M STA 3+30.30

ROAD A STA 33+87.87 = ROAD M STA 0+00.00

ROAD A STA 38+39.15 = ROAD D STA 0+00.00

ROAD D STA 2+47.97 = ROAD E STA 6+05.34

ROAD D STA 5+28.39 = ROAD F STA 6+90.58

ROAD A

ROAD E

ROAD M

ROAD F

ROAD D

ROAD C

PROP. BASIN #7

PROP. BASIN #8

PROP. BASIN #9

PROP. DETECTABLE WARNING STRIP (TYP.)

PROP. "STOP" SIGN AND STOP BAR

PROP. BASIN ACCESS ROUTE

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. 3.5' GRASS STRIP (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. CURB CUT (TYP.) SEE DETAIL

PROP. "STOP" SIGN AND STOP BAR

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. "STOP" SIGN AND STOP BAR

PROP. BASIN ACCESS ROUTE

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

100.0' VERNAL POOL BUFFER

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

APPROX. 50.0' EXISTING GAS EASEMENT

811
Know what's below.
Call before you dig.

40 20 10 0 40
1"= 40'

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
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3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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CONNECTICUT LICENSE NO. 21364
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MAINE LICENSE NO.
NEW YORK LICENSE NO. 121264-1
FLORIDA LICENSE NO. 85202

SHEET TITLE:

SITE PLAN E

SHEET NUMBER:

11
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

N W E S

MATCH LINE - SHEETS E/F

MATCH LINE - SHEETS F/G

MATCH LINE - SHEETS A/F

APPROX. 50.0 EXISTING GAS EASEMENT

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

100.0' VERNAL POOL BUFFER

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

150.0' WETLAND BUFFER

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. BASIN #10

PROP. BASIN #12

PROP. BASIN #11

PROP. BASIN ACCESS ROUTE

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

3.5' GRASS STRIP (TYP.)

PROP. RETAINING WALL (SEE DESIGN PLANS PREPARED BY OTHERS)

PROP. WOOD GUIDE RAIL AND 4' CHAIN LINK FENCE (TYP.)

PROP. CROSSING (REFER TO DETAIL)

PROP. FOOTING

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

APPROX. 100' PERIMETER BUFFER

100.0' PROPERTY BUFFER

APPROX. 1,512 SF WETLAND DISTURBED

APPROX. 1,850 SF WETLAND REPLICATION (SEE PLANS PREPARED BY OTHERS)

PROP. BANK RESTORATION (SEE PLANS PREPARED BY OTHERS)

APPROX. 43 LF OF BANK DISTURBANCE

PROP. PUTTING GREEN (SEE PLANS PREPARED BY OTHERS)

PROP. DETECTABLE WARNING STRIP (TYP.)

PROP. "STOP" SIGN AND STOP BAR

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. BASIN ACCESS ROUTE

ROAD A STA 42+09.04 = STA 0+00.00 ROAD C

ROAD A STA 45+52.98 = STA 0+00.00 ROAD B

ROAD G STA 2+30.96 = STA 0+00.00 ROAD J

ROAD A

ROAD G

ROAD J

MAIN SITE DRIVE-SITE DISTANCE (TYP.)

END OF PROP. VERTICAL GRANITE CURB, BEGIN PROP. BELGIAN BLOCK CURB (TYP.)

PROP. VERTICAL GRANITE CURB (TYP.)

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

DWELLING

BLDG.

Know what's below. Call before you dig.

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1"= 40'

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- HARRISBURG, PA
- READING, PA
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- CENTRAL VIRGINIA
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- CHARLOTTE, NC
- TAMPA, FL
- SOUTHERN MARYLAND
- BALTIMORE, MD

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
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NEW HAMPSHIRE LICENSE NO. 17290
MAINE LICENSE NO. 2005
NEW YORK LICENSE NO. 121284-1
FLORIDA LICENSE NO. 68202

SHEET TITLE:

SITE PLAN F

SHEET NUMBER:

12 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

N W E S

MATCH LINE - SHEETS G/H

MATCH LINE - SHEETS F/G

ROAD H

ROAD G

ORCHARD STREET

PROP. CULVERT (SEE DETAIL)

PROP. RETAINING WALL (SEE DESIGN BY OTHERS)

PROP. GUIDE RAIL AND 4' CHAIN LINK FENCE (TYP.)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. BELGIAN BLOCK CURB (TYP.)

3.5' GRASS STRIP (TYP.)

PROP. DETECTABLE WARNING STRIP (TYP.)

PROP. "STOP" SIGN AND STOP BAR

PROP. VERTICAL GRANITE CURB (TYP.)

PROP. BASIN #13

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. BASIN ACCESS ROUTE

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. LIMIT OF WORK

PROP. GATED ENTRANCE (SEE PLANS BY PREPARED OTHERS)

WEST SITE DRIVE SITE DISTANCE (TYP.)

END OF PROP. VERTICAL GRANITE CURB, BEGIN BELGIAN BLOCK CURB (TYP.)

END OF PROP. VERTICAL GRANITE CURB, BEGIN PROP. BELGIAN BLOCK CURB (TYP.)

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX.)

APPROX. 50' EXISTING GAS EASEMENT

50.0' WETLAND BUFFER

100' WETLAND BUFFER

100' VERNAL POOL BUFFER

APPROX. 100' PERIMETER BUFFER

DWELLING

POOL

SHED

CB/DH FND

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1" = 40'

811 Know what's below. Call before you dig.

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
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NEW HAMPSHIRE LICENSE NO. 10280
MAINE LICENSE NO. 9090
NEW YORK LICENSE NO. 076954-1
FLORIDA LICENSE NO. 68202

SHEET TITLE:

SITE PLAN G

SHEET NUMBER:

13 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

N

W E

S

MATCH LINE - SHEETS H/I

MATCH LINE - SHEETS E/H

MATCH LINE - SHEETS G/H

ROAD H

HOLLISTON

MILLIS

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. LIMIT OF WORK

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. BASIN ACCESS ROUTE

PROP. BASIN #19

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. RETAINING WALL (SEE DESIGNS BY OTHERS)

PROP. RETAINING WALL (SEE DESIGN PLANS PREPARED BY OTHERS)

PROP. GUIDE RAIL AND 4' CHAIN LINK FENCE (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. CULVERT (SEE DETAIL)

PROP. GUIDE RAIL AND 4' CHAIN LINK FENCE (TYP.)

PROP. RETAINING WALL (SEE DESIGN BY OTHERS)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

APPROX. 100' PERIMETER BUFFER

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

100.0' VERNAL POOL BUFFER

3.0' GRASS STRIP (TYP.)

20' MIN (TYP.)

305 306 244 243 242 241 247 246 245

40 20 10 0 40

1"= 40'

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◆ BOSTON, MA ◆ NORTHERN NEW JERSEY ◆ TAMPA, FL
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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
www.BohlerEngineering.com

W.D. GOEBEL
COMMONWEALTH OF MASSACHUSETTS
PROFESSIONAL ENGINEER
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RHODE ISLAND LICENSE NO. 13,725
CONNECTICUT LICENSE NO. 27854
NEW HAMPSHIRE LICENSE NO. 10280
MAINE LICENSE NO. PE14390
NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE No. 66202

SHEET TITLE:

SITE PLAN H

SHEET NUMBER:

14 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

N W E S

HOLLISTON / MILLIS

SB/FND

DEP ZONE II

APPROX. 100' PERIMETER BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

100.0' VERNAL POOL BUFFER

APPROX. BOTTOM OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

APPROX. LIMIT OF PROP. DETENTION/INFILTRATION BASIN (TYP.)

PROP. BASIN #17

PROP. BASIN ACCESS ROUTE

PROP. RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. BELGIAN BLOCK CURB (TYP.)

PROP. 5' WIDE BIT. CONC. SIDEWALK (TYP.)

PROP. "STOP" SIGN AND STOP BAR

PROP. SIDEWALK CONNECTION TO RESIDENTIAL UNIT (TYP.) (SEE ARCHITECTURAL PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. BASIN #16

PROP. BASIN #16A

PROP. BASIN #15

ROAD I

ROAD H

STA 5+00.11 = STA 21+56.17

MATCH LINE - SHEETS H/I

MATCH LINE - SHEETS D/I

POOL

CB/DH FND

811 Know what's below. Call before you dig.

P:\15\W\W161041\Drawings\Plan Sets\Residential\REV5\W161041_sd5.dwg, 15-Site1, 10/6/2014, 4:29:00 PM, Iaso, Xerox5101-pc3, Use=B34, 1:1

REVISIONS

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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
7			
8			
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13			
14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
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DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

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SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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WILLIAM D. GOEBEL
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MAINE LICENSE No. 9580
NEW YORK LICENSE No. 072054-1
FLORIDA LICENSE No. 86202

SHEET TITLE:

SITE PLAN I

SHEET NUMBER:

15 OF 85

REV 5 - 08/11/2017

BOHLER ENGINEERING
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING LANDSCAPE ARCHITECTURE
SUSTAINABILITY TRANSPORTATION SERVICES
PROGRAM MANAGEMENT PERMITTING SERVICES
◆ UPSTATE NEW YORK ◆ PHILADELPHIA, PA ◆ NORTHERN VIRGINIA
◆ NEW ENGLAND ◆ LEHIGH VALLEY, PA ◆ CENTRAL VIRGINIA
◆ BOSTON, MA ◆ ALLENTOWN, PA ◆ RALEIGH, NC
◆ NEW JERSEY METRO ◆ CHARLOTTE, NC
◆ REHOBOTH BEACH, DE ◆ TAMPA, FL
◆ BALTIMORE, MD ◆ ORLANDO, FLORIDA
◆ SOUTHERN MARYLAND ◆ FOUNDATIONS FIRST
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THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

MATCH LINE - SHEETS A/B

MATCH LINE - SHEETS A/F

ROAD A

ROAD B

ROAD L

ORCHARD STREET

APPROX. 100' PERIMETER BUFFER

APPROX. 100' PERIMETER BUFFER

APPROX. 100' PERIMETER BUFFER

200' RIVERFRONT BUFFER

200' RIVERFRONT BUFFER

50.0' WETLAND BUFFER

50.0' WETLAND BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

PROP. BASIN #1

PROP. BASIN ACCESS ROUTE

PROP. LIMIT OF WORK

PROP. ROOF DRAIN (TYP.)

PROP. FOUNDATION DRAIN (TYP.)

PROP. ROOF DRAIN (TYP.)

MONITORING WELL (TYP.)

TOP OF BASIN ELE.=148.00

UNIT #1 TW: 152.01 GF: 151.34 BF: 143.47

UNIT #2 TW: 151.83 GF: 151.16 BF: 143.29

UNIT #3 TW: 152.54 GF: 151.87 BF: 144.00

UNIT #4 TW: 155.17 GF: 154.50 BF: 146.63

UNIT #5 TW: 155.17 GF: 154.50 BF: 146.63

UNIT #6 TW: 153.84 GF: 153.17 BF: 145.30

UNIT #7 TW: 153.84 GF: 153.17 BF: 145.30

UNIT #8 TW: 153.67 GF: 153.00 BF: 145.13

UNIT #9 TW: 152.97 GF: 152.30 BF: 144.43

UNIT #10 TW: 153.46 GF: 152.79 BF: 144.92

UNIT #11 TW: 153.91 GF: 153.24 BF: 145.37

UNIT #12 TW: 153.93 GF: 153.26 BF: 145.39

UNIT #13 TW: 153.40 GF: 152.73 BF: 144.86

UNIT #78 TW: 154.44 GF: 153.77 BF: 145.90

UNIT #79 TW: 155.1 GF: 154.44 BF: 146.57

UNIT #80 TW: 155.11 GF: 154.44 BF: 146.57

UNIT #81 TW: 156.94 GF: 156.27 BF: 148.40

UNIT #82 TW: 156.94 GF: 156.27 BF: 148.40

UNIT #83 TW: 156.09 GF: 155.42 BF: 147.55

UNIT #84 TW: 155.42 GF: 154.75 BF: 146.88

UNIT #85 TW: 155.42 GF: 154.75 BF: 146.88

UNIT #86 TW: 156.27 GF: 155.60 BF: 147.73

UNIT #87 TW: 156.94 GF: 156.27 BF: 148.40

UNIT #88 TW: 157.24 GF: 156.57 BF: 148.70

UNIT #89 TW: 156.94 GF: 156.27 BF: 148.40

UNIT #90 TW: 156.57 GF: 155.90 BF: 148.03

UNIT #91 TW: 156.57 GF: 155.90 BF: 148.03

UNIT #92 TW: 156.57 GF: 155.90 BF: 148.03

UNIT #93 TW: 155.86 GF: 155.19 BF: 147.32

UNIT #94 TW: 155.20 GF: 154.53 BF: 146.66

UNIT #95 TW: 154.53 GF: 153.86 BF: 145.99

UNIT #96 TW: 153.86 GF: 153.19 BF: 145.32

CB-28 RIM=153.69 INV. IN=150.20 (CB-29) INV. OUT=150.20 (CB-27)

CB-29 RIM=155.27 INV. OUT=151.49 (CB-28)

CB-26 RIM=150.19 INV. OUT=147.37 (CB-23)

CB-23 RIM=148.89 INV. IN=146.65 (CB-24) INV. OUT=146.65 (CB-22)

CB-22 RIM=149.00 INV. IN=146.23 (CB-23) INV. OUT=146.23 (CB-21)

CB-21 RIM=150.23 INV. IN=145.46 (CB-22) INV. OUT=145.46 (CB-20)

CB-20 RIM=146.85 INV. IN=144.90 (CB-21) INV. OUT=144.90 (FES-01E)

CB-07 RIM=149.60 INV. OUT=147.18 (CB-06)

CB-06 RIM=149.50 INV. IN=146.87 (CB-07) INV. OUT=146.87 (CB-05)

CB-05 RIM=149.42 INV. IN=146.40 (CB-06) INV. OUT=146.40 (DMH-03)

CB-04 RIM=149.64 INV. OUT=146.28 (DMH-03)

CB-03 RIM=149.64 INV. OUT=146.31 (DMH-03)

CB-10 RIM=149.60 INV. OUT=146.88 (DMH-05)

CB-11

CB-12

CB-08

CB-09

CB-01 RIM=149.76 INV. OUT=146.27 (DMH-02)

CB-02 RIM=149.62 INV. OUT=146.13 (DMH-02)

CB-13

CB-14

CB-15

CB-19

CB-25

DMH-01

DMH-02

DMH-03 RIM=150.00 INV. IN=146.04 (CB-04) INV. IN=146.04 (CB-05) INV. IN=146.04 (CB-03) INV. OUT=146.04 (DMH-02)

DMH-04

DMH-05

DMH-06

DMH-07 #1000

DMH-08

DMH-10

DMH-11

FES-01 INV = 144.00

FES-01A INV = 144.50

FES-01B INV = 144.50

FES-01C INV = 144.50

FES-01D INV = 144.00

FES-01E INV = 144.50

OCS-01 RIM=146.75 INV. OUT=144.50 (FES-01)

FF=151.55

TP #1000

TP #1001

TP #1002

TP #1003

TP #1055

TP #1112

TW=150.00 BW=143.59

TW=150.00 BW=144.13

TW=145.00 BW=144.50

TW=150.00 BW=144.00

INV.=143.00

INV.=145.00

INV.=144.00

INV.=145.00

65' - 12" PERF. HDPE @ 0.50%

153' - 12" PERF. HDPE @ 0.50%

112' - 12" PERF. HDPE @ 0.50%

138' - 24" HDPE @ 0.00%

140' - 24" HDPE @ 0.54%

30' - 12" HDPE @ 0.83%

23' - 12" HDPE @ 1.07%

29' - 12" HDPE @ 2.87%

28' - 12" HDPE @ 2.64%

12' - 12" HDPE @ 12.89%

13' - 12" HDPE @ 11.83%

38' - 12" HDPE @ 0.99%

18' - 12" HDPE @ 0.51%

42' - 12" HDPE @ 0.50%

42' - 12" HDPE @ 0.50%

42' - 12" HDPE @ 0.50%

42' - 12" HDPE @ 0.50%

52' - 12" HDPE @ 0.52%

105' - 18" HDPE @ 0.50%

72' - 18" HDPE @ 0.50%

146' - 18" HDPE @ 0.50%

85' - 12" HDPE @ 0.68%

40' - 24" HDPE @ 0.51%

18' - 12" HDPE @ 8.21%

33' - 12" HDPE @ 2.22%

50' - 12" HDPE @ 1.33%

104' - 18" HDPE @ 0.58%

85' - 12" HDPE @ 0.58%

85' - 12" HDPE @ 0.58%

TC 150.10 BC 149.60

TC 150.70 BC 150.20

TC 150.66 BC 150.16

TC 151.16 BC 150.66

TC 150.66 BC 150.15

TC=149.62 BC=149.62

TC=149.70 BC=149.70

TC 150.62 BC 150.12

TC 150.30 BC 149.80

TC 149.98 BC 149.48

TC 149.98 BC 149.38

TC 149.37 BC 148.87

TC 149.89 BC 149.39

TC 151.09 BC 150.59

TC 151.09 BC 150.50

TC 150.66 BC 150.06

TC 150.65 BC 150.05

TC 150.42

TC 149.89 BC 149.39

BC 151.24

R-1 R-2 R-3 R-78 R-79 R-80 R-81 R-82 R-83 R-83A R-84 R-838 R-85 R-86 R-87 R-88 R-89 R-90

T-1 T-2 T-3 T-3A T-5 T-6 T-7 T-8 T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-16 T-17 T-18 T-19 T-20 T-21

M-22 M-22-1

Q-1 Q-2

O-52 O-53 O-54 O-55 O-56 O-57 O-60 O-61 O-62 O-63 O-64 O-65 O-66 O-67 O-68 O-69 O-70 O-71 O-71-1 O-71-2 O-71-3 O-71-4 O-71-5 O-71-6 O-72 O-73 O-74 O-75 O-77 O-78 O-79 O-80 O-81 O-82 O-83 O-84 O-85 O-86 O-87 O-88

065-1 065-2 065-3 065-4

DH FND

CB/DH FND

CB/FND

N S E W

40 20 10 0 40
1"= 40'

811 Know what's below. Call before you dig.

P:\16W\W161041\Drawings\Plan Set\Residential\RES\W161041_ps5.dwg, 16-Grad Drainage-A, 10/8/2014, 4:29:05 PM, jlalo, Xerox7010-1.pc3, User\SA, 1:1

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROJECT MANAGEMENT
SUSTAINABLE DESIGN PERMITTING AND APPROVALS
LANDSCAPE ARCHITECTURE
TRANSPORTATION PLANNING

- UPSTATE NEW YORK
- NEW ENGLAND
- LONG ISLAND
- NEW YORK METRO
- NEW YORK, NY
- NEW JERSEY

- PHILADELPHIA, PA
- LEHIGH VALLEY, PA
- CENTRAL PENNSYLVANIA
- REHOBOTH BEACH, DE
- BALTIMORE, MD
- WASHINGTON, MARYLAND

- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RICHMOND, VA
- CHARLOTTE, NC
- TAMPA, FL
- ORLANDO, FLORIDA

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REVISIONS

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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13			
14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

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MAINE LICENSE NO. 6910
NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE NO. 66202

SHEET TITLE:

GRADING & DRAINAGE PLAN A

SHEET NUMBER:

16
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

MATCH LINE - SHEETS B/C

MATCH LINE - SHEETS A/B

MATCH LINE - SHEETS B/E

ROAD A

ROAD C

ROAD D

ZONE AE

200 FT RIVERFRONT AREA

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

BORDERING VEGETATED WETLANDS

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

MONITORING WELL (TYP.)

PROP. BASIN #6

PROP. BASIN #2

PROP. BASIN ACCESS ROUTE

PROP. ROOF DRAIN (TYP.)

PROP. FOUNDATION DRAIN (TYP.)

PROP. ROOF DRAIN WITH SPLASH PAD (TYP.)

CONNECT ROOF LEADERS TO PROPOSED HEADER PIPE (TYP.)

APPROX. EXISTING GAS LINE

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX)

TOP OF BERM ELE=148.70

TOP OF BASIN ELE=148.60

TOP OF BASIN ELE=151.40

OCS-02 RIM=147.00 INV. OUT=143.25 (FES-02) 28" - 30" HDPE @ 0.54%

FES-02 INV.= 143.10

FES-02A INV.= 145.00

FES-02B INV.= 145.00

CB-30 RIM=150.60 INV. IN=147.07 (CB-31) INV. OUT=146.60 (DMH-12)

CB-31 RIM=151.84 INV. IN=148.95 (CB-32) INV. OUT=148.70 (CB-30)

CB-27 RIM=151.20 INV. IN=147.23 (CB-28) INV. OUT=147.23 (DMH-11)

CB-28 RIM=153.69 INV. IN=150.20 (CB-29) INV. OUT=150.20 (CB-27)

UNIT #210 TW: 156.04 GF: 155.37 BF: 147.50

UNIT #211 TW: 155.37 GF: 154.70 BF: 146.83

UNIT #212 TW: 154.70 GF: 154.03 BF: 146.16

UNIT #213 TW: 154.04 GF: 153.37 BF: 145.50

UNIT #25 TW: 154.17 GF: 153.50 BF: 145.63

UNIT #24 TW: 153.23 GF: 152.56 BF: 144.69

UNIT #23 TW: 152.64 GF: 151.97 BF: 144.10

UNIT #22 TW: 152.77 GF: 152.10 BF: 144.23

UNIT #21 TW: 153.55 GF: 152.88 BF: 145.01

UNIT #26 TW: 155.05 GF: 154.38 BF: 146.51

UNIT #20 TW: 153.65 GF: 152.98 BF: 145.11

UNIT #19 TW: 152.83 GF: 151.96 BF: 144.09

UNIT #18 TW: 152.46 GF: 151.79 BF: 143.92

UNIT #17 TW: 152.07 GF: 151.40 BF: 143.53

UNIT #16 TW: 151.97 GF: 151.30 BF: 143.43

UNIT #15 TW: 152.41 GF: 151.74 BF: 143.87

UNIT #14 TW: 152.29 GF: 151.62 BF: 143.75

UNIT #13 GF: 152.73 BF: 144.86

UNIT #167 TW: 167.25 GF: 166.58 BF: 158.71 (WALKOUT)

UNIT #186 TW: 166.59 GF: 165.92 BF: 158.05 (WALKOUT)

UNIT #219 TW: 159.77 GF: 159.10 BF: 151.23

UNIT #218 TW: 159.10 GF: 158.43 BF: 150.56

UNIT #217 TW: 159.10 GF: 158.43 BF: 150.56

UNIT #216 TW: 156.20 GF: 155.53 BF: 147.66

UNIT #215 TW: 155.53 GF: 154.86 BF: 146.99

UNIT #214 TW: 155.53 GF: 154.86 BF: 146.99

UNIT #127 TW: 157.29 GF: 156.62 BF: 148.75

UNIT #126 TW: 157.29 GF: 156.62 BF: 148.75

UNIT #125 TW: 156.62 GF: 155.95 BF: 148.08

UNIT #128 TW: 161.48 GF: 160.81 BF: 152.94 (WALKOUT)

UNIT #129 TW: 162.15 GF: 161.48 BF: 153.61 (WALKOUT)

UNIT #130 TW: 162.15 GF: 161.48 BF: 153.61 (WALKOUT)

UNIT #131 TW: 165.46 GF: 164.79 BF: 156.92 (WALKOUT)

UNIT #123 TW: 152.22 GF: 151.55 BF: 143.68

UNIT #124 TW: 152.22 GF: 151.55 BF: 143.68

UNIT #121 TW: 153.60 GF: 152.93 BF: 145.06

UNIT #122 TW: 153.60 GF: 152.93 BF: 145.06

UNIT #120 TW: 154.27 GF: 153.60 BF: 145.73

UNIT #119 TW: 155.64 GF: 154.97 BF: 147.10

UNIT #118 TW: 155.64 GF: 154.97 BF: 147.10

UNIT #117 TW: 156.31 GF: 155.64 BF: 147.77

UNIT #99 TW: 153.21 GF: 152.54 BF: 144.67

UNIT #98 TW: 153.21 GF: 152.54 BF: 144.67

UNIT #97 TW: 152.54 GF: 151.87 BF: 144.00

UNIT #100 TW: 154.55 GF: 153.88 BF: 146.01

UNIT #101 TW: 155.24 GF: 154.54 BF: 146.67

UNIT #102 TW: 155.88 GF: 155.21 BF: 147.34

UNIT #103 TW: 156.55 GF: 155.88 BF: 148.01

UNIT #104 TW: 157.44 GF: 156.77 BF: 148.90

UNIT #94 TW: 155.20 GF: 154.53 BF: 146.66

UNIT #95 TW: 154.53 GF: 153.86 BF: 145.99

UNIT #96 TW: 153.86 GF: 153.19 BF: 145.32

UNIT #92 TW: 156.57

UNIT #93 TW: 155.86

13" - 12" HDPE @ 0.59%

15" - 12" HDPE @ 0.50%

14" - 24" HDPE @ 0.53%

33" - 12" HDPE @ 0.51%

17" - 12" HDPE @ 0.53%

14" - 12" HDPE @ 0.50%

24" - 12" HDPE @ 2.84%

48" - 12" HDPE @ 0.52%

107" - 15" HDPE @ 1.80%

154" - 15" HDPE @ 0.65%

24" - 12" HDPE @ 1.34%

154" - 15" HDPE @ 1.95%

33" - 12" HDPE @ 3.33%

31" - 12" HDPE @ 0.88%

166" - 15" HDPE @ 2.35%

7" - 12" HDPE @ 0.77%

12" - 12" HDPE @ 0.94%

18" - 12" HDPE @ 0.54%

49" - 18" HDPE @ 0.78%

33" - 18" HDPE @ 0.52%

146" - 30" HDPE @ 0.94%

124" - 30" HDPE @ 0.53%

28" - 30" HDPE @ 0.54%

DMH-12, DMH-13, DMH-14, DMH-15, DMH-18, DMH-22, DMH-23, DMH-24, DMH-25, DMH-26

CB-31, CB-32, CB-33, CB-34, CB-35, CB-36, CB-37, CB-38, CB-41, CB-42, CB-52, CB-53, CB-54, CB-55, CB-56, CB-64

FES-08 INV = 149.30

FES-08C INV = 147.40

FES-08A INV = 147.40

FES-08B INV = 147.40

MATCH LINE - SHEETS B/E

P:\161041\01041\Drawings\Plan Sets\Residential\RE\161041_p&S.dwg, 17-Grad Drainage -B, 10/6/2014, 4:26:00 PM, jjan, Xerox5510-1.pc3, User\DA, 1:1

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- SOUTH FLORIDA

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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14			
15			
16			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
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MAINE LICENSE NO. 9000
NEW YORK LICENSE NO. 070294-1
FLORIDA LICENSE NO. 85202

SHEET TITLE:

GRADING & DRAINAGE PLAN B

SHEET NUMBER:

17 OF 85

REV 5 - 09/11/2017

811 Know what's below. Call before you dig.

1" = 40'

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

HOLLISTON

MILLIS

ZONE AE (BFE 144)

ZONE AE (BFE 143)

APPROX. 100' PERIMETER BUFFER

MONITORING WELL (TYP.)

TOP OF BASIN ELE.=157.00

OCS-04 RIM=155.50 INV. OUT=152.85 (FES-04)

PROP. BASIN #4

154.00

156.00

60' - 18" HDPE @ 0.57%

FES-04 INV = 152.50

EDGE OF WATER (TYP.)

PROP. ROOF DRAIN (TYP.)

PROP. SWALE (TYP.)

PROP. FOUNDATION DRAIN (TYP.)

100' WETLAND BUFFER

50' WETLAND BUFFER

MATCH LINE - SHEETS C/D

MATCH LINE - SHEETS B/C

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

TOP OF BASIN ELE=151.60

TOP OF BERM ELE=151.70

MONITORING WELL (TYP.)

PROP. BASIN #3

OCS-03 RIM=150.40 INV. OUT=147.70 (FES-03)

FES-03 INV = 147.00

FES-03A INV = 147.70

TOP OF BASIN ELE=151.40

PROP. ROOF DRAIN (TYP.)

CONNECT ROOF LEADERS TO PROPOSED HEADER PIPE (TYP.)

200' RIVERFRONT AREA

241' - 18" HDPE @ 1.44%

224'-00.00

24' - 12" HDPE @ 2.52%

12' - 12" HDPE @ 2.73%

51' - 18" HDPE @ 4.70%

20'+00.00

EDA-A

15' - 12" HDPE @ 0.50%

13' - 12" HDPE @ 0.59%

UNIT #201 TW: 161.42 GF: 160.75 BF: 152.88

UNIT #202 TW: 160.40 GF: 159.73 BF: 151.86

UNIT #203 TW: 159.48 GF: 158.81 BF: 150.94

UNIT #204 TW: 162.56 GF: 161.91 BF: 154.04 (WALKOUT)

UNIT #205 TW: 161.91 GF: 161.24 BF: 153.37 (WALKOUT)

UNIT #206 TW: 161.25 GF: 160.58 BF: 152.71 (WALKOUT)

UNIT #207 TW: 159.56 GF: 158.89 BF: 151.02

UNIT #208 TW: 159.56 GF: 158.89 BF: 151.02

UNIT #209 TW: 158.90 GF: 158.23 BF: 150.36

UNIT #210 TW: 156.04 GF: 155.37 BF: 147.50

UNIT #25 TW: 155.05 GF: 154.38 BF: 146.51

UNIT #26 TW: 156.04 GF: 155.37 BF: 147.50

UNIT #27 TW: 156.00 GF: 155.33 BF: 147.46

UNIT #28 TW: 156.88 GF: 156.21 BF: 148.34

UNIT #29 TW: 157.76 GF: 157.09 BF: 149.22

UNIT #30 TW: 158.62 GF: 157.95 BF: 150.08

UNIT #31 TW: 159.48 GF: 158.81 BF: 150.94

UNIT #32 TW: 160.40 GF: 159.73 BF: 151.86

UNIT #33 TW: 161.42 GF: 160.75 BF: 152.88

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
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3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
7			
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13			
14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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MAINE LICENSE NO. 9400
NEW YORK LICENSE NO. 031784-1
FLORIDA LICENSE NO. 86222

SHEET TITLE:

GRADING & DRAINAGE PLAN C

SHEET NUMBER:

18 OF 85

REV 5 - 08/11/2017

811 Know what's below. Call before you dig.

1"= 40'

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THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

HOLLISTON

MILLIS

D

811 Know what's below. Call before you dig.

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- CHARLOTTE, NC
- TAMPA, FL
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REVISIONS			
REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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14			
15			

DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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FLORIDA LICENSE NO. 66202

SHEET TITLE:

GRADING & DRAINAGE PLAN D

SHEET NUMBER:

19
OF 85

REV 5 - 08/11/2017

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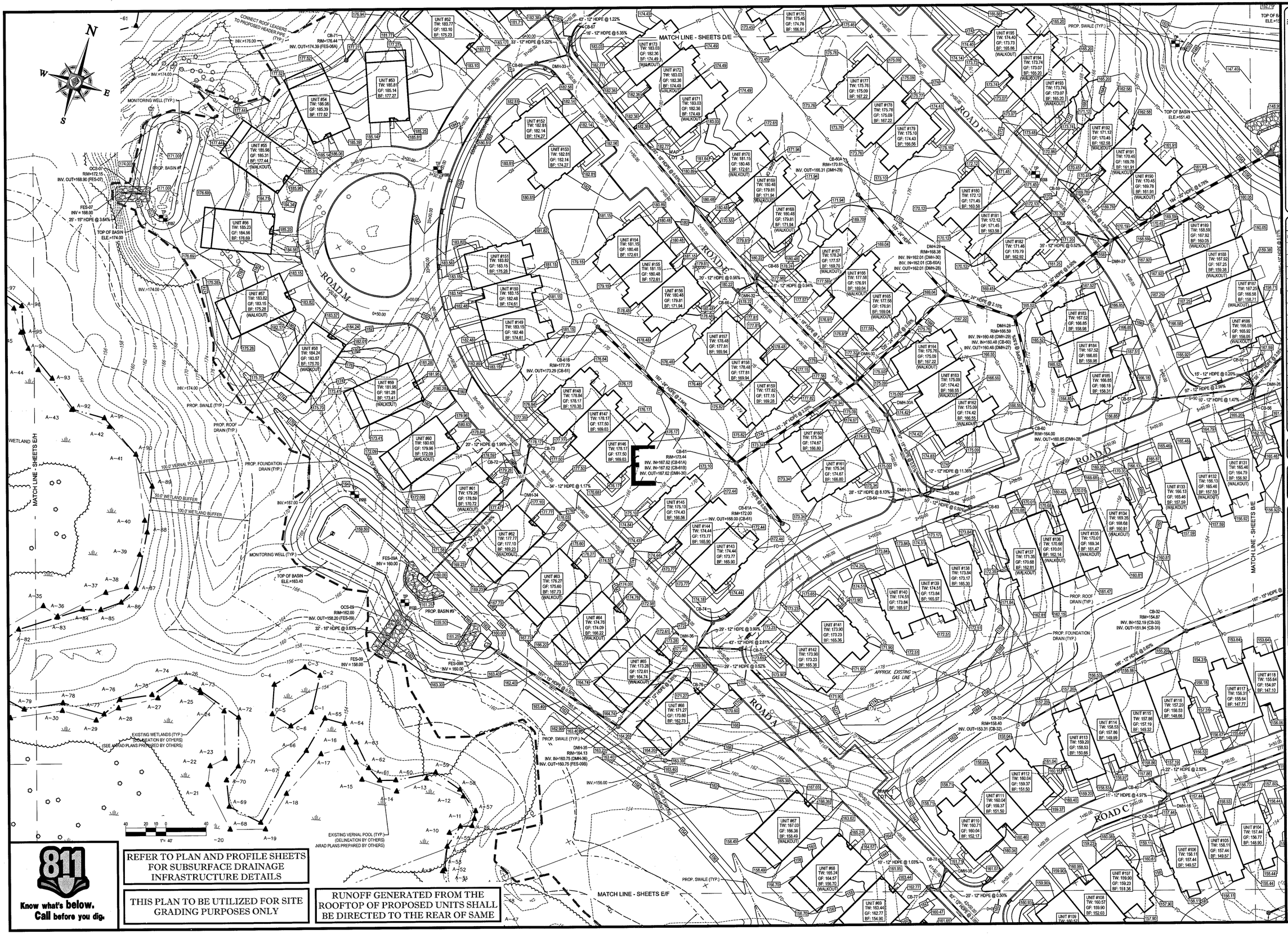
MATCH LINE - SHEETS D/E
MATCH LINE - SHEETS E/F
MATCH LINE - SHEETS E/H
MATCH LINE - SHEETS B/E
ROAD M
ROAD E
ROAD F
ROAD A
ROAD C
MAIN ENTRY
CB-71 RIM=176.44 INV. OUT=174.39 (FES-06A)
CONNECT ROOF LEADERS TO PROPOSED HEADER PIPE (TYP.)
MONITORING WELL (TYP.)
PROP. BASIN #1
PROP. BASIN #2
PROP. BASIN #3
TOP OF BASIN ELE=174.00
TOP OF BASIN ELE=151.40
TOP OF BASIN ELE=163.40
OCS-07 RIM=172.15 INV. OUT=168.90 (FES-07)
FES-07 INV = 168.00 25' - 15" HDPE @ 3.64%
FES-09A INV = 160.00
FES-09B INV = 160.00
FES-09 INV = 158.00
OCS-09 RIM=162.00 INV. OUT=158.20 (FES-09)
32' - 15" HDPE @ 0.63%
PROP. SWALE (TYP.)
PROP. ROOF DRAIN (TYP.)
PROP. FOUNDATION DRAIN (TYP.)
PROP. SWALE (TYP.)
WETLAND
100.0' VERNAL POOL BUFFER
50.0' WETLAND BUFFER
100.0' WETLAND BUFFER
EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE NRAD PLANS PREPARED BY OTHERS)
EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) NRAD PLANS PREPARED BY OTHERS)
APPROX. EXISTING GAS LINE
APPROX. EXISTING GAS LINE
UNIT #52 TW: 183.77 GF: 183.10 BF: 175.23
UNIT #53 TW: 185.81 GF: 185.14 BF: 177.27
UNIT #54 TW: 186.06 GF: 185.39 BF: 177.52
UNIT #55 TW: 185.96 GF: 185.31 BF: 177.44 (WALKOUT)
UNIT #56 TW: 185.23 GF: 184.56 BF: 178.69
UNIT #57 TW: 183.82 GF: 183.15 BF: 175.28 (WALKOUT)
UNIT #58 TW: 184.24 GF: 183.57 BF: 175.70 (WALKOUT)
UNIT #59 TW: 181.95 GF: 181.28 BF: 173.41 (WALKOUT)
UNIT #60 TW: 180.63 GF: 179.96 BF: 172.09 (WALKOUT)
UNIT #61 TW: 179.26 GF: 178.59 BF: 170.72 (WALKOUT)
UNIT #62 TW: 177.77 GF: 177.10 BF: 169.23 (WALKOUT)
UNIT #63 TW: 176.27 GF: 175.60 BF: 167.73 (WALKOUT)
UNIT #64 TW: 174.78 GF: 174.09 BF: 166.22 (WALKOUT)
UNIT #65 TW: 173.28 GF: 172.61 BF: 164.74 (WALKOUT)
UNIT #66 TW: 171.27 GF: 170.60 BF: 162.73
UNIT #67 TW: 187.03 GF: 186.36 BF: 155.49 (WALKOUT)
UNIT #68 TW: 165.24 GF: 164.57 BF: 156.70 (WALKOUT)
UNIT #69 TW: 163.44 GF: 162.77 BF: 154.90
UNIT #131 TW: 165.46 GF: 164.79 BF: 156.92 (WALKOUT)
UNIT #132 TW: 165.13 GF: 165.46 BF: 157.59 (WALKOUT)
UNIT #133 TW: 166.13 GF: 165.46 BF: 157.59 (WALKOUT)
UNIT #134 TW: 169.35 GF: 168.68 BF: 160.81 (WALKOUT)
UNIT #135 TW: 170.01 GF: 169.34 BF: 161.47 (WALKOUT)
UNIT #136 TW: 170.68 GF: 170.01 BF: 162.14 (WALKOUT)
UNIT #137 TW: 171.35 GF: 170.68 BF: 162.81 (WALKOUT)
UNIT #138 TW: 173.84 GF: 173.17 BF: 165.30
UNIT #139 TW: 174.51 GF: 173.84 BF: 165.97
UNIT #140 TW: 174.51 GF: 173.84 BF: 165.97
UNIT #141 TW: 173.90 GF: 173.23 BF: 165.36
UNIT #142 TW: 173.90 GF: 173.23 BF: 165.36
UNIT #143 TW: 174.44 GF: 173.77 BF: 165.90
UNIT #144 TW: 174.44 GF: 173.77 BF: 165.90
UNIT #145 TW: 175.10 GF: 174.43 BF: 166.56
UNIT #146 TW: 178.17 GF: 177.50 BF: 169.63
UNIT #147 TW: 176.17 GF: 177.50 BF: 169.63
UNIT #148 TW: 178.84 GF: 178.17 BF: 170.30
UNIT #149 TW: 183.15 GF: 182.48 BF: 174.61
UNIT #150 TW: 183.15 GF: 182.48 BF: 174.61
UNIT #151 TW: 183.82 GF: 183.15 BF: 175.28
UNIT #152 TW: 182.81 GF: 182.14 BF: 174.27
UNIT #153 TW: 182.81 GF: 182.14 BF: 174.27
UNIT #154 TW: 181.15 GF: 180.48 BF: 172.61
UNIT #155 TW: 181.15 GF: 180.48 BF: 172.61
UNIT #156 TW: 180.48 GF: 179.81 BF: 171.94
UNIT #157 TW: 178.48 GF: 177.81 BF: 169.94
UNIT #158 TW: 178.48 GF: 177.81 BF: 169.94
UNIT #159 TW: 177.82 GF: 177.15 BF: 169.28
UNIT #160 TW: 175.34 GF: 174.67 BF: 166.80
UNIT #161 TW: 175.34 GF: 174.67 BF: 166.80
UNIT #162 TW: 175.09 GF: 174.42 BF: 166.55 (WALKOUT)
UNIT #163 TW: 175.09 GF: 174.42 BF: 166.55 (WALKOUT)
UNIT #164 TW: 175.76 GF: 175.09 BF: 167.22 (WALKOUT)
UNIT #165 TW: 177.58 GF: 176.91 BF: 169.04 (WALKOUT)
UNIT #166 TW: 177.58 GF: 176.91 BF: 169.04 (WALKOUT)
UNIT #167 TW: 178.24 GF: 177.57 BF: 169.70 (WALKOUT)
UNIT #168 TW: 180.48 GF: 179.81 BF: 171.94 (WALKOUT)
UNIT #169 TW: 180.48 GF: 179.81 BF: 171.94 (WALKOUT)
UNIT #170 TW: 181.15 GF: 180.48 BF: 172.61 (WALKOUT)
UNIT #171 TW: 183.03 GF: 182.36 BF: 174.49 (WALKOUT)
UNIT #172 TW: 183.03 GF: 182.36 BF: 174.49 (WALKOUT)
UNIT #173 TW: 183.03 GF: 182.36 BF: 174.49 (WALKOUT)
UNIT #174 TW: 175.45 GF: 174.78 BF: 166.91
UNIT #175 TW: 175.45 GF: 174.78 BF: 166.91
UNIT #176 TW: 175.76 GF: 175.09 BF: 167.22
UNIT #177 TW: 175.76 GF: 175.09 BF: 167.22
UNIT #178 TW: 175.76 GF: 175.09 BF: 167.22
UNIT #179 TW: 175.10 GF: 174.43 BF: 166.56
UNIT #180 TW: 172.12 GF: 171.45 BF: 163.58
UNIT #181 TW: 172.12 GF: 171.45 BF: 163.58
UNIT #182 TW: 171.46 GF: 170.79 BF: 162.92
UNIT #183 TW: 167.52 GF: 166.85 BF: 158.98
UNIT #184 TW: 167.52 GF: 166.85 BF: 158.98
UNIT #185 TW: 166.85 GF: 166.18 BF: 158.31
UNIT #186 TW: 166.59 GF: 165.92 BF: 158.05 (WALKOUT)
UNIT #187 TW: 167.25 GF: 166.58 BF: 158.71 (WALKOUT)
UNIT #188 TW: 167.92 GF: 167.25 BF: 159.38 (WALKOUT)
UNIT #189 TW: 168.58 GF: 167.92 BF: 160.05 (WALKOUT)
UNIT #190 TW: 170.45 GF: 169.78 BF: 161.91 (WALKOUT)
UNIT #191 TW: 170.45 GF: 169.78 BF: 161.91 (WALKOUT)
UNIT #192 TW: 171.12 GF: 170.45 BF: 162.58 (WALKOUT)
UNIT #193 TW: 173.74 GF: 173.07 BF: 165.20 (WALKOUT)
UNIT #194 TW: 173.74 GF: 173.07 BF: 165.20 (WALKOUT)
UNIT #195 TW: 174.40 GF: 173.73 BF: 165.86 (WALKOUT)
UNIT #196 TW: 174.40 GF: 173.73 BF: 165.86 (WALKOUT)
UNIT #197 TW: 174.40 GF: 173.73 BF: 165.86 (WALKOUT)
UNIT #198 TW: 174.40 GF: 173.73 BF: 165.86 (WALKOUT)
UNIT

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

N W E S

MATCH LINE - SHEETS E/F

MATCH LINE - SHEETS F/G

MATCH LINE - SHEETS A/F

'G VEGETATED WETLANDS

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

100.0' VERNAL POOL BUFFER

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

ROAD G

ROAD I

ROAD A

PROP. SWALE (TYP.)

PROP. FOUNDATION DRAIN (TYP.)

PROP. ROOF DRAIN (TYP.)

MONITORING WELL (TYP.)

TOP OF BASIN ELE.=154.00

TOP OF BASIN ELE.=158.26

TOP OF BERM ELE.=158.30

EDGE OF WOODS TO REMAIN

EDGE OF WOODS TO BE REMOVED

APPROX. 100' PERIMETER BUFFER

APPROX. 150' PERIMETER BUFFER

100.0' PROPERTY BUFFER

PROP. BASIN #10

PROP. BASIN #12

PROP. BASIN #11

CB-89 PROP. VERTICAL GRANITE CURB INLET (TYP.)

CB-90 PROP. VERTICAL GRANITE CURB INLET (TYP.)

CB-88 RIM=151.99 INV. OUT=149.00 (DMH-44)

CB-92 RIM=163.07 INV. IN=159.81 (CB-93) INV. OUT=159.81 (DMH-46)

CB-93 RIM=163.51 INV. OUT=160.51 (CB-92)

CB-91 RIM=158.48 INV. OUT=155.85 (DMH-45)

OCS-12 RIM=155.80 INV. OUT=153.55 (FES-12)

OCS-10 RIM=153.00 INV. OUT=149.75 (FES-10)

OCS-11 RIM=148.40 INV. OUT=145.28 (FES-11)

CO-12A RIM=167.81 INV. IN=159.90 (CO-12B) INV. OUT=159.90 (FES-12B)

FES-10A INV = 150.50

FES-10B INV = 150.50

FES-10 INV = 149.00

FES-11 INV = 145.00

FES-12 INV = 153.00

FES-12A INV = 154.50

FES-12B INV = 154.50

FES-01D INV = 144.50

DMH-36 RIM=161.85 INV. OUT=157.85 (DMH-37)

DMH-37 RIM=161.57 INV. OUT=157.57 (DMH-38)

DMH-38 RIM=161.07 INV. OUT=157.07 (DMH-39)

DMH-39 RIM=154.24 INV. IN=151.38 (DMH-40) INV. OUT=151.38 (FES-10B)

DMH-40 RIM=156.90 INV. OUT=152.90 (DMH-41)

DMH-41 RIM=151.62 INV. OUT=147.62 (DMH-42)

DMH-42 RIM=153.99 INV. OUT=149.99 (DMH-44)

DMH-44 RIM=154.06 INV. OUT=150.06 (DMH-45)

DMH-45 RIM=161.06 INV. OUT=156.06 (DMH-46)

DMH-46 RIM=164.33 INV. OUT=159.33 (DMH-47)

DMH-47 RIM=169.46 INV. OUT=164.46

CB-17 RIM=150.87 INV. OUT=147.37 (DMH-08)

DMH-08 RIM=152.78 INV. OUT=148.28

DMH-09 RIM=154.34 INV. OUT=149.84

CB-16 RIM=163.74 INV. OUT=159.24

CB-18 RIM=154.91 INV. OUT=151.41

CB-19 RIM=155.75 INV. OUT=152.25

CB-80 RIM=162.94 INV. OUT=158.94

CB-81 RIM=155.73 INV. OUT=151.23

CB-82 RIM=151.62 INV. OUT=147.62

CB-83 RIM=146.00 INV. OUT=142.00

CB-84 RIM=152.82 INV. OUT=148.82

CB-85 RIM=153.62 INV. OUT=149.62

CB-86 RIM=153.60 INV. OUT=149.60

CB-87 RIM=154.93 INV. OUT=150.93

CB-29 RIM=155 INV. OUT

UNIT #68 TW: 165.24 GF: 164.57 BF: 156.70 (WALKOUT)

UNIT #69 TW: 163.44 GF: 162.77 BF: 154.90 (WALKOUT)

UNIT #70 TW: 161.65 GF: 160.98 BF: 153.11 (WALKOUT)

UNIT #71 TW: 159.87 GF: 159.20 BF: 151.33

UNIT #72 TW: 158.82 GF: 158.15 BF: 150.28

UNIT #73 TW: 157.48 GF: 156.81 BF: 148.94

UNIT #74 TW: 156.40 GF: 155.73 BF: 147.86

UNIT #75 TW: 155.46 GF: 154.79 BF: 146.92

UNIT #76 TW: 154.34 GF: 153.67 BF: 145.80

UNIT #77 TW: 153.45 GF: 152.78 BF: 144.91

UNIT #86 TW: 154.94 GF: 154.27 BF: 146.40

UNIT #87 TW: 155.60 GF: 154.93 BF: 147.06

UNIT #88 TW: 155.27 GF: 155.60 BF: 147.73

UNIT #89 TW: 159.94 GF: 156.27 BF: 148.40

UNIT #107 TW: 159.90 GF: 159.23 BF: 151.36

UNIT #108 TW: 160.57 GF: 159.90 BF: 152.03

UNIT #109 TW: 160.57 GF: 159.90 BF: 152.03

UNIT #220 TW: 155.20 GF: 154.53 BF: 146.66

UNIT #221 TW: 154.57 GF: 153.90 BF: 146.03

UNIT #222 TW: 154.29 GF: 153.62 BF: 145.75

UNIT #223 TW: 160.79 GF: 160.12 BF: 152.25

UNIT #224 TW: 161.75 GF: 161.08 BF: 153.21

UNIT #225 TW: 162.66 GF: 161.99 BF: 154.12

UNIT #226 TW: 163.06 GF: 162.89 BF: 155.02

UNIT #227 TW: 164.47 GF: 163.80 BF: 155.93

UNIT #228 TW: 165.39 GF: 164.72 BF: 156.85

UNIT #229 TW: 166.65 GF: 165.98 BF: 158.11

UNIT #230 TW: 169.04 GF: 168.37 BF: 160.50

UNIT #231 TW: 171.29 GF: 170.62 BF: 162.75

UNIT #232 TW: 173.50 GF: 172.83 BF: 164.96

UNIT #310 TW: 170.13 GF: 169.46 BF: 161.59 (WALKOUT)

UNIT #311 TW: 168.09 GF: 167.42 BF: 159.55 (WALKOUT)

UNIT #312 TW: 166.49 GF: 165.82 BF: 157.95

UNIT #313 TW: 165.25 GF: 164.58 BF: 156.71

UNIT #314 TW: 164.33 GF: 163.66 BF: 155.79

UNIT #315 TW: 163.43 GF: 162.76 BF: 154.89

UNIT #316 TW: 162.53 GF: 161.86 BF: 153.99

UNIT #317 TW: 161.63 GF: 160.96 BF: 153.09

UNIT #318 TW: 159.91 GF: 159.24 BF: 151.37

UNIT #319 TW: 156.62 GF: 155.85 BF: 147.98

UNIT #320 TW: 155.25 GF: 154.58 BF: 146.71

UNIT #321 TW: 153.99 GF: 153.32 BF: 145.45

UNIT #322 TW: 153.25 GF: 152.58 BF: 144.71

UNIT #323 TW: 153.62 GF: 152.95 BF: 145.08

UNIT #324 TW: 153.49 GF: 152.82 BF: 144.95

285' - 12" HDPE @ 1.90%

204' - 12" HDPE @ 4.46%

31' - 12" HDPE @ 5.40%

28' - 12" HDPE @ 2.70%

27' - 12" HDPE @ 5.29%

14' - 12" HDPE @ 0.64%

234' - 18" HDPE @ 1.60%

17' - 12" HDPE @ 0.52%

139' - 12" HDPE @ 0.50%

172' - 12" HDPE @ 0.87%

146' - 24" HDPE @ 0.82%

47' - 12" HDPE @ 1.31%

45' - 12" HDPE @ 1.42%

28' - 12" HDPE @ 11.43%

44' - 12" HDPE @ 0.50%

31' - 12" HDPE @ 10.07%

67' - 12" HDPE @ 0.66%

19' - 12" HDPE @ 0.53%

11' - 12" HDPE @ 12.91%

18' - 18" HDPE @ 0.50%

55' - 24" HDPE @ 0.51%

29' - 15" HDPE @ 2.59%

90' - 15" HDPE @ 0.81%

165' - 12" HDPE @ 0.55%

165' - 12" HDPE @ 1.10%

35' - 12" HDPE @ 0.54%

32' - 12" HDPE @ 0.59%

38' - 12" HDPE @ 0.99%

18' - 12" HDPE @ 0.51%

65' - 12" HDPE @ 0.46%

14' - 12" HDPE @ 15.08%

130' - 12" HDPE @ 0.50%

20' - 12" HDPE @ 0.50%

FES-10A TP

PROP. BASIN #10 TP

FES-10B TP

CB-87 TP

CB-82 TP

CB-84 TP

CB-85 TP

CB-86 TP

FES-01D TP

APPROX. CULVERT FOOTING LOCATION

TW=154.10 BW=146.00

TW=154.59 BW=146.38

TW=154.87 BW=146.00

TW=154.59 BW=146.00

TW=154.63 BW=146.00

TW=154.59 BW=146.00

TW=154.26 BW=146.00

TW=153.65 BW=146.00

TW=153.00 BW=152.50

TW=153.00 BW=152.00

TW=151.45 BW=146.00

INV.=145.00

INV.=144.00

INV.=146.00

INV.=148.00

INV.=146.13 (DMH-09)

INV. OUT=

RIM=15

BF: 149.57

BF: 145.44

BF: 146.11

BF: 146.27

BF: 146.40

BF: 146.60

BF: 146.80

BF: 147.00

BF: 147.20

BF: 147.40

BF: 147.60

BF: 147.80

BF: 148.00

BF: 148.20

BF: 148.40

BF: 148.60

BF: 148.80

BF: 149.00

BF: 149.20

BF: 149.40

BF: 149.60

BF: 149.80

BF: 150.00

BF: 150.20

BF:

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

N W E S

APPROX. AMPHIBIAN CROSSING LOCATIONS
MATCH LINE - SHEETS G/H

MATCH LINE - SHEETS F/G

ROAD G

ORCHARD STREET

BORDERING VEGETATED WETLANDS

APPROX. 100' PERIMETER BUFFER

150.0' WETLAND BUFFER

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

VERNAL POOL BUFFER

TOP OF BASIN ELE=171.96

MONITORING WELL (TYP.)

PROP. FOUNDATION DRAIN (TYP.)

PROP. ROOF DRAIN (TYP.)

CONNECT ROOF LEADERS TO PROPOSED HEADER PIPE (TYP.)

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX)

EDGE OF WOODS (TO REMAIN)

APPROX. EXISTING GAS LINE

DWELLING

POOL

MAP 1 LOT 6
N/F
KAMIL ALACHI
&
DANIELLE ALACHI

MAP 5 LOT 1
N/F
GREGORY M. DOHERTY JR.
&
CAROLYN DOHERTY

MAP 5 LOT 8
N/F
EDWARD M. SCHAFFER
&
VIRGINIA L. SCHAFFER

MAP 5 LOT 28
N/F
JAMES R. MURRAY
&
MINDY SHEFTS MURRAY

UNIT #307 TW: 171.37 GF: 170.70 BF: 162.83 (WALKOUT)
UNIT #308 TW: 175.68 GF: 174.91 BF: 167.04 (WALKOUT)
UNIT #240 TW: 183.85 GF: 180.15 BF: 172.28 (WALKOUT)
UNIT #239 TW: 181.28 GF: 180.59 BF: 172.72 (WALKOUT)
UNIT #238 TW: 182.36 GF: 181.68 BF: 173.81 (WALKOUT)
UNIT #257 TW: 183.45 GF: 182.78 BF: 174.91 (WALKOUT)
UNIT #236 TW: 184.50 GF: 183.83 BF: 175.96 (WALKOUT)
UNIT #309 TW: 183.62 GF: 182.95 BF: 175.08
UNIT #235 TW: 182.62 GF: 181.95 BF: 174.08 (WALKOUT)
UNIT #234 TW: 180.39 GF: 179.72 BF: 171.85 (WALKOUT)
UNIT #233 TW: 176.75 GF: 176.08 BF: 168.21
UNIT #232 TW: 173.50 GF: 172.83 BF: 164.96

DMH-52 TW=166.00 BW=157.33
DMH-53 TW=168.00 BW=157.33
DMH-54 TW=166.10 BW=155.34
DMH-48A RIM=172.24 INV. IN=169.82 (DMH-48) INV. OUT=169.82 (FES-13A)
DMH-49 TW=170.00 BW=169.30
DMH-68 TW=175.59 BW=170.00
DMH-69 TW=177.99 BW=170.00
DMH-70 TW=175.24 BW=170.00
DMH-71 TW=170.10 BW=169.30 INV.=174.00
DMH-72
DMH-73
CB-100
CB-101
CB-102
CB-103
CB-104
CB-122 PROP. VERTICAL GRANITE CURB INLET (TYP.)
CB-123 PROP. VERTICAL GRANITE CURB INLET (TYP.)
CB-124 PROP. VERTICAL GRANITE CURB INLET (TYP.)
CB-125 PROP. VERTICAL GRANITE CURB INLET (TYP.)
CB-96
CB-97
CO-126 RIM=173.16 INV. IN=169.00 (CO-12C) INV. OUT=169.00 (CO-12A)
CO-128 RIM=174.01 INV. OUT=169.71 (CO-12B)
OCS-13 RIM=171.25 INV. OUT=168.12 (FES-13)
OCS-34 RIM=158.50 INV. IN=154.95 (DMH-71)
FES-13 INV = 166.00
FES-13A INV = 169.00
TP PERC BASIN #13 PWR

23' - 12" HDPE @ 3.10%
23' - 12" HDPE @ 2.91%
23' - 15" HDPE @ 0.51%
169' - 12" HDPE @ 0.51%
12" HDPE @ 0.40%
33' - 12" HDPE @ 0.52%
53' - 12" HDPE @ 0.50%
12" HDPE @ 0.40%
18' - 12" HDPE @ 6.55%
15' - 12" HDPE @ 1.03%
15' - 12" HDPE @ 0.95%
15' - 12" HDPE @ 0.55%
33' - 15" HDPE @ 3.34%
25' - 15" HDPE @ 1.99%
34' - 12" HDPE @ 0.99%
71' - 12" HDPE @ 1.00%
31' - 12" HDPE @ 1.00%
27' - 12" HDPE @ 1.00%

40 20 10 0 40
1" = 40'

811 Know what's below. Call before you dig.

P:\16\W16104\1\Drawings\Plan Set\Residential\REVS\W16104_as5_dwg, 22-Grad Drainage -G, 10/6/2014, 4:26:00 PM, Jay, Xerox5010-1.pc3, User:54, 1:1

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♦ NORTHERN VIRGINIA ♦ CENTRAL VIRGINIA ♦ RALEIGH, NC ♦ CHARLOTTE, NC ♦ TAMPA, FL ♦ ORLANDO, FLORIDA

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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12			
13			
14			
15			

DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
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CONNECTICUT LICENSE No. 28654
NEW HAMPSHIRE LICENSE No. 10280
MAINE LICENSE No. (PLEASE ADD)
NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE No. 66202

SHEET TITLE:
GRADING & DRAINAGE PLAN G

SHEET NUMBER:
22
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

N

W E

S

MATCH LINE - SHEETS H/I

MONITORING WELL (TYP.)

MAP 6 BLOCK 2 LOT 17A
N/F
WILLIAM C. HARRINGTON
&
DIANA R. HARRINGTON

MAP 1
LOT 2

APPROX. 100' PERIMETER BUFFER

ROAD H

UNIT #305
TW: 169.27
GF: 168.60
BF: 160.73

UNIT #306
TW: 169.27
GF: 168.60
BF: 160.73

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

100.0' VERNAL POOL BUFFER

TW=169.67
BW=168.67

TW=174.57
BW=169.39

TW=171.97
BW=170.00

TW=169.99
BW=169.88

TW=168.00
BW=167.00

TW=167.88
BW=161.56

TW=166.99
BW=166.00

TOP OF BASIN
ELE.=164.35

FES-19A
INV = 161.00

OCS-19
RIM=163.20
INV. OUT=160.45 (FES-19)

FES-19
INV = 160.00

INV.=160.00

INV.=164.00

UNIT #247
TW: 171.79
GF: 171.12
BF: 163.25

UNIT #246
TW: 170.97
GF: 170.30
BF: 162.43

UNIT #245
TW: 170.40
GF: 169.73
BF: 161.86

PROP. ROOF DRAIN (TYP.)

PROP. FOUNDATION DRAIN (TYP.)

PROP. BASIN #18

36" - 15" HDPE @ 1.28%

25' - 12" HDPE @ 0.52%
9' - 12" HDPE @ 1.14%
27' - 12" HDPE @ 8.66%

CB-121
CB-120
DMH-67

BORDERING VEGETATED WETLAND

MATCH LINE - SHEETS E/H

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

PROP. BASIN ACCESS ROUTE

PROP. BASIN #14

MONITORING WELL (TYP.)

TOP OF BASIN
ELE.=160.50

TOP OF BERM
ELE.=160.60

FES-14B
INV = 156.50

FES-14A
INV = 156.50

FES-14
INV = 156.00

OCS-14
RIM=159.40
INV. OUT=156.15 (FES-14)

DMH-55
CB-106
CB-105

53' - 15" HDPE @ 0.21%
6' - 12" HDPE @ 1.81%
23' - 12" HDPE @ 0.43%

UNIT #244
TW: 166.61
GF: 165.94
BF: 158.07
(WALKOUT)

UNIT #243
TW: 165.98
GF: 165.28
BF: 157.41
(WALKOUT)

UNIT #242
TW: 165.10
GF: 164.43
BF: 156.56
(WALKOUT)

UNIT #241
TW: 164.61
GF: 163.94
BF: 156.07
(WALKOUT)

DMH-50
DMH-51
DMH-52
DMH-53

14' - 12" HDPE @ 0.65%
18' - 12" HDPE @ 0.50%
8' - 12" HDPE @ 1.17%
22' - 12" HDPE @ 0.50%

TW=163.67
BW=163.00

TW=166.00
BW=156.00

TW=163.81
BW=156.33

TW=163.68
BW=156.30

TW=163.28
BW=162.55

TW=163.29
BW=156.20

TW=163.18
BW=154.65

TW=163.46
BW=156.00

TW=163.45
BW=154.54

TW=164.00
BW=156.52

TW=166.00
BW=157.30

APPROX. AMPHIBIAN CROSSING LOCATIONS

MATCH LINE - SHEETS G/H

HOLLISTON
MILLIS

811
Know what's below.
Call before you dig.

40 20 10 0 40
1"= 40'

P:\16\W16104\1\Drawings\Plan Sets\Resident\all\REV5\W16104_sd5.dwg, 23-Grad Drainage -H, 10/6/2014, 4:28:00 PM, jlao, XerxXS10-1.pc3, Used534, 1:1

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- RALEIGH, NC
- SOUTHERN, NC
- TAMPA, FL
- SOUTH FLORIDA
- BALTIMORE, MD
- SOUTHERN MARYLAND

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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14			
15			

DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W16104_SS5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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MAINE LICENSE No. EN10290
NEW YORK LICENSE No. 072284-1
FLORIDA LICENSE No. 66202

SHEET TITLE:
GRADING & DRAINAGE PLAN H

SHEET NUMBER:
23
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE DRAINAGE INFRASTRUCTURE DETAILS

RUNOFF GENERATED FROM THE ROOFTOP OF PROPOSED UNITS SHALL BE DIRECTED TO THE REAR OF SAME

N

W E

S

MAP 9 BLOCK 6 LOT 62
N/F
BENEDETTO A. MIELE, JR
&
PATRICIA A. MIELE

MAP 9 BLOCK 6 LOT 61
N/F
JEFFREY C. HASTIE
&
ANGELA C. HASTIE

MAP 6 BLOCK 2 LOT 90
N/F
DONALD LUNNY
&
KATHLEEN M. LUNNY

6 BLOCK 2 LOT 89
N/F
OHN H. KOSIAN
&
NITA McFADDEN

HOLLISTON
MILLIS

APPROX. 100' PERIMETER BUFFER

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

50' WETLAND BUFFER
100' WETLAND BUFFER
100' VERNAL POOL BUFFER

MATCH LINE - SHEETS D/I

MATCH LINE - SHEETS H/I

811
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- CENTRAL VIRGINIA
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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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MAINE LICENSE NO. 9726
NEW YORK LICENSE NO. 091284-1
FLORIDA LICENSE NO. 85202

SHEET TITLE:

GRADING & DRAINAGE PLAN I

SHEET NUMBER:

24
OF 85

REV 5 - 08/11/2017

1"= 40'

P:\16\W161041\Drawings\Plan Sets\Residential\RED\SW161041_ss5.dwg, 24-Grad Drainage-I, 10/6/2014 4:28:00 PM, jtao, XeroxX610-1.pc3, User\S24, 1:1

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

REFER TO THE OFF-SITE WATER LINE PLANS AND OFF-SITE SEWER LINE PLANS FOR UTILITY CONNECTIONS WITHIN ORCHARD STREET AND UTILITY UPGRADES ASSOCIATED WITH THE SITE DEVELOPMENT

MATCH LINE - SHEETS A/B

MATCH LINE - SHEETS A/F

ROAD A

ROAD B

ROAD J

ROAD L

ORCHARD STREET

PROP. LIMIT OF WORK

EDGE OF TREES (TO REMAIN)

BORDERING VEGETATED WETLANDS

50.0' WETLAND BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

PROP. TRANSFORMER PAD (TYP.) (CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

PROP. GAS SERVICE (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. TEE AND GATE VALVE (TYP.)

PROP. 8" CLDI WATER MAIN (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

PROP. 8" SEWER MAIN (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. GENERATOR (SEE PLANS DESIGNED BY OTHERS)

PROP. PUMP STATION - 1

VALVE CHAMBER - 1

PROP. BASIN #1

MONITORING WELL (TYP.)

TOP OF BASIN ELE.=148.00

APPROX. 100' PERIMETER BUFFER

APPROX. 150' PERIMETER BUFFER

200.0' RIVERFRONT AREA

RIVERFRONT AREA

ZONE AE (BFE 143)

EXISTING FENCE (TO REMAIN)

EDGE OF TREES (TBR)

CB/FND

CB-01 RIM=149.76 INV. OUT=146.27 (DMH-02)

CB-02 RIM=149.63 INV. OUT=146.13 (DMH-02)

CB-03 RIM=149.84 INV. OUT=146.31 (DMH-03)

CB-04 RIM=149.84 INV. OUT=146.28 (DMH-03)

CB-05 RIM=149.42 INV. IN=146.40 (CB-06) INV. OUT=146.40 (DMH-03)

CB-06 RIM=149.50 INV. IN=146.87 (CB-07) INV. OUT=146.87 (CB-05)

CB-07 RIM=149.60 INV. OUT=147.18 (CB-06)

CB-08 RIM=149.60 INV. OUT=146.88 (DMH-05)

CB-09

CB-10 RIM=149.60 INV. OUT=146.88 (DMH-05)

CB-11

CB-12

CB-13

CB-14

CB-15

CB-16

CB-17

CB-18

CB-19

CB-20

CB-21 RIM=150.23 INV. IN=145.45 (CB-22) INV. OUT=145.46 (CB-20)

CB-22 RIM=149.00 INV. IN=146.23 (CB-23) INV. OUT=146.23 (CB-21)

CB-23 RIM=149.89 INV. IN=146.65 (CB-24) INV. OUT=146.65 (CB-22)

CB-24 RIM=150.19 INV. OUT=147.37 (CB-23)

CB-25

CB-26

CB-27

CB-28 RIM=153.69 INV. IN=150.20 (CB-29) INV. OUT=150.20 (CB-27)

CB-29 RIM=155.27 INV. OUT=151.49 (CB-28)

DMH-01

DMH-02

DMH-03 RIM=150.08 INV. IN=146.04 (CB-04) INV. IN=146.04 (CB-05) INV. IN=146.04 (CB-03) INV. OUT=146.04 (DMH-02)

DMH-04

DMH-05

DMH-06

DMH-07

DMH-08

DMH-09

DMH-10

DMH-11

SMH-01

SMH-02

SMH-03

SMH-04

SMH-05

SMH-06

SMH-19

SMH-32

SMH-33

OCS-01 RIM=146.75 INV. OUT=144.50 (FES-01)

FES-01 INV = 144.00

FES-01A INV = 144.50

FES-01B INV = 144.50

FES-01C INV = 144.50

FES-01D INV = 144.50

FES-01E INV = 144.50

1 LOT 1 N/F OF MILLIS

2 LOT 2 N/F OF MILLIS

3 LOT 3 N/F OF MILLIS

4 LOT 4 N/F OF MILLIS

5 LOT 17 N/F OF MILLIS

6 LOT 6 N/F ROBERT R. CRACI & [illegible]

APPROX. LOCATION OF FORCE MAIN CONNECTION TO PROPOSED FORCE MAIN IN ORCHARD STREET IN ACCORDANCE W/ TOWN OF MILLIS REQUIREMENTS. CONTRACTOR SHALL CONFIRM THE LOCATION OF MAIN PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO DESIGN ENGINEER.

OF WATER SERVICE MAIN IN ACCORDANCE W/ QUIREMENTS. L CONFIRM LOCATION OF STRUCTION AND REPORT S TO DESIGN ENGINEER.

811 Know what's below. Call before you dig.

1" = 40'

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
7			
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14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
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NEW YORK LICENSE No. 075284-1
FLORIDA LICENSE No. 66202

SHEET TITLE:

UTILITY PLAN A

SHEET NUMBER:

25 OF 85

REV 5 - 08/11/2017

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THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

MATCH LINE - SHEETS B/C

MATCH LINE - SHEETS A/B

MATCH LINE - SHEETS B/E

ROAD A

ROAD C

ROAD D

ZONE AE

200' RIVERFRONT AREA

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

PROP. BASIN #2

PROP. BASIN #8

TOP OF BASIN ELE=151.40

TOP OF BERM ELE=148.70

TOP OF BASIN ELE=148.60

FES-08C INV = 147.40

FES-08A INV = 147.40

FES-08B INV = 147.40

FES-06 INV = 149.30

FES-02 INV = 143.10

FES-02B INV = 145.00

FES-02A INV = 145.00

MONITORING WELL (TYP.)

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX.)

PROP. TRANSFORMER PAD (TYP.)
(CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRANSFORMER PAD REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

PROP. 4" SEWER SERVICE (TYP.)

PROP. TEE AND GATE VALVE (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. 8" CLDI WATER MAIN (TYP.)

PROP. GAS SERVICE (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. 8" SEWER MAIN (TYP.)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

APPROX. EXISTING GAS LINE

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

BORDERING VEGETATED WETLANDS

OCS-02 RIM=147.00 INV. OUT=143.25 (FES-02)

CB-30 RIM=150.60 INV. IN=147.07 (CB-31) INV. OUT=146.80 (DMH-12)

CB-31 RIM=151.84 INV. IN=148.95 (CB-32) INV. OUT=148.70 (CB-30)

CB-28 RIM=153.69 INV. IN=150.20 (CB-29) INV. OUT=150.20 (CB-27)

CB-97 RIM=151.20 INV. IN=147.23 (CB-28) INV. OUT=147.23 (DMH-11)

111 - 8" PVC @ 0.51%

168 - 8" PVC @ 2.24%

166 - 8" PVC @ 1.50%

170 - 8" PVC @ 3.50%

105 - 8" PVC @ 0.85%

155 - 8" PVC @ 0.50%

288 - 8" PVC @ 0.50%

244 - 8" PVC @ 1.72%

40 20 10 0 40
1"= 40'

811
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BALTIMORE, MD
WASHINGTON, DC / MARYLAND

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SOUTH FLORIDA

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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SHEET TITLE:
UTILITY PLAN B

SHEET NUMBER:
26
OF 85

REV 5 - 08/11/2017

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REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

HOLLISTON

MILLIS

ZONE AE (BFE 144)

ZONE AE (BFE 143)

APPROX. 100' PERIMETER BUFFER

MONITORING WELL (TYP.)

TOP OF BASIN ELE.=157.00

OCS-04 RIM=155.50 INV. OUT=152.85 (FES-04)

EDGE OF POND (TYP.)

PROP. BASIN #4

FES-04 INV = 152.50

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

MATCH LINE - SHEETS C/D

MATCH LINE - SHEETS B/C

TOP OF BASIN ELE.=151.60

TOP OF BERM ELE.=151.70

MONITORING WELL (TYP.)

OCS-03 RIM=150.40 INV. OUT=147.70 (FES-03)

FES-03 INV = 147.00

PROP. BASIN #3

FES-03A INV = 147.70

PROP. 4" SEWER SERVICE (TYP.)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

PROP. GAS SERVICE (TYP.)

PROP. 8" SEWER MAIN (TYP.)

PROP. 8" CLDI WATER MAIN (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

ROAD A

TOP OF BASIN ELE.=151.40

119 - 8" PVC @ 0.50%

111 - 8" PVC @ 0.51%

200' RIVERFRONT AREA

EXISTING WETLANDS (TYP.) (DELINEATED BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

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1"= 40'

P:\161W\W161041\Drawings\Plan Sets\Residential\REV5\W161041_sd5.dwg, 27-Utilities-C, 10/6/2014, 4:26:00 PM, jlaio, Xerox5510-1 pc3, User834, 1:1

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PROGRAM MANAGEMENT
PERMITTING SERVICES

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- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RALEIGH, NC
- CHARLOTTE, NC
- AUSTIN, TX
- TAMPA, FL
- ORLANDO, FLORIDA

- UPSTATE NEW YORK
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- NEW YORK METRO
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- NEW JERSEY

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REVISIONS

REV.	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SD5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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SHEET TITLE:

UTILITY PLAN C

SHEET NUMBER:

27 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

HOLLISTON

MILLIS

MAP 1 LOT 1

MATCH LINE - SHEETS D/I

MATCH LINE - SHEETS D/E

MATCH LINE - SHEETS C/D

APPROX. 100' PERIMETER BUFFER

ROAD I

ROAD J

ROAD K

ROAD A

ROAD F

PROP. BASIN #18

PROP. BASIN #5

PROP. BASIN #6

BASIN #15

FES-18 INV = 154.00

OCS-18 RIM=158.00 INV. OUT=154.50 (FES-18)

MONITORING WELL (TYP.)

TOP OF BERM ELE.=159.10

TOP OF BASIN ELE.=159.00

FES-18A INV = 156.00

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

100.0' VERNAL POOL BUFFER

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

BORDERING VEGETATED WETLANDS

PROP. GAS SERVICE (TYP.)

PROP. LINE VALVE (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

PROP. GENERATOR (SEE PLANS DESIGNED BY OTHERS)

PROP. 4" FORCE MAIN (TYP.)

PROP. 8" CLDI WATER MAIN (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. 8" SEWER MAIN (TYP.)

PROP. PUMP STATION - 3

5 - 4" SDR-26 PVC FM @ -1.83%

VALVE CHAMBER - 3

38 - 4" SDR-26 PVC FM @ -0.50%

131 - 4" SDR-26 PVC FM @ -0.54%

111 - 8" PVC @ 1.20%

181 - 8" PVC @ 1.40%

97 - 8" PVC @ 0.62%

111 - 8" PVC @ 1.82%

131 - 4" SDR-26 PVC FM @ 3.98%

300 - 8" PVC @ 2.89%

111 - 8" PVC @ 2.85%

223 - 8" PVC @ 2.20%

219 - 8" PVC @ 1.50%

262 - 8" PVC @ 1.67%

DMH-64 RIM=161.48 INV. IN=156.78 (CB-117) INV. IN=156.78 (DMH-65) INV. OUT=156.78 (FES-18A)

CB-117 RIM=163.01 INV. IN=159.44 (CO-117A) INV. OUT=159.44 (DMH-64)

CO-117B RIM=163.83 INV. OUT=160.51 (CO-117A)

CO-117A RIM=164.12 INV. IN=159.97 (CO-117B) INV. OUT=159.97 (CB-117)

FES-15A INV = 160.00

OCS-15 RIM=161.90 INV. OUT=158.55 (FES-15)

FES-15 INV = 158.50

TOP OF BASIN ELE.=162.70

TOP OF BERM ELE.=162.80

FES-06 INV = 172.00

OCS-06 RIM=175.20 INV. OUT=172.30 (FES-06)

TOP OF BASIN ELE.=176.50

FES-06A INV = 173.50

CB-71 RIM=176.44 INV. OUT=174.39 (FES-06A)

OCS-05 RIM=182.60 INV. OUT=159.35 (FES-05)

FES-05 INV = 159.00

FES-05A INV = 160.10

TOP OF BASIN ELE.=163.60

CB-70 RIM=164.04 INV. OUT=160.97 (FES-05A)

SMH-87

SMH-86

SMH-84

SMH-51

SMH-56

SMH-15

SMH-16

SMH-14

SMH-17

SMH-45

SMH-40

DMH-65

DMH-21

DMH-20

CB-118

CB-119

CB-49

CB-47

CB-48

CB-46

CB-50

CB-68

CB-67

DMH-30

N

S

E

W

40 20 10 0 40

1"= 40'

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:

UTILITY PLAN D

SHEET NUMBER:

28
OF 85

REV 5 - 08/11/2017

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P:\1SVWS\1041\Drawings\Plan Sets\Residential\REV5\W161041_ss5.dwg, 22-Utilities-D, 10/6/2014, 4:28:00 PM, jlao, Xerox5510-1.pc3, User634, 1:1

MATCH LINE - SHEETS D/E

MATCH LINE - SHEETS E/F

MATCH LINE - SHEETS E/H

MATCH LINE - SHEETS B/E

ROAD A

ROAD C

ROAD D

ROAD E

ROAD F

ROAD M

BASE OF WOODBURY DRIVE (TYP.)

CB-71
RIM=178.44
INV. OUT=174.39 (FES-06A)

MONITORING WELL (TYP.)

PROP. BASIN #7

OCS-07
RIM=172.15
INV. OUT=168.90 (FES-07)

FES-07
INV = 168.00

TOP OF BASIN
ELE=174.00

SMH-31

SMH-30

SMH-29

SMH-28

SMH-27

SMH-26

SMH-17

SMH-16

SMH-49

SMH-48

SMH-47

SMH-46

SMH-45

SMH-44

SMH-43

SMH-42

SMH-41

SMH-40

SMH-39

SMH-38

SMH-37

SMH-36

SMH-35

SMH-25

SMH-24

PROP. TEE AND GATE VALVE (TYP.)

PROP. GAS SERVICE (TYP.)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

PROP. 8" SEWER MAIN (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. 8" CLDI WATER MAIN (TYP.)

APPROX. EXISTING GAS LINE

APPROX. 60' EXISTING GAS EASEMENT

98 - 8" PVC @ 0.50%

97 - 8" PVC @ 0.50%

113 - 8" PVC @ 1.95%

103 - 8" PVC @ 1.07%

60 - 8" PVC @ 2.10%

287 - 8" PVC @ 2.48%

137 - 8" PVC @ 1.79%

206 - 8" PVC @ 1.79%

125 - 8" PVC @ 0.68%

134 - 8" PVC @ 1.68%

169 - 8" PVC @ 2.80%

106 - 8" PVC @ 0.50%

227 - 8" PVC @ 3.81%

147 - 8" PVC @ 2.68%

280 - 8" PVC @ 2.99%

195 - 8" PVC @ 1.51%

109 - 8" PVC @ 1.68%

265 - 8" PVC @ 2.68%

CB-61
RIM=173.44
INV. IN=157.62 (CB-61A)
INV. IN=157.62 (CB-61B)
INV. OUT=157.62 (DMH-30)

CB-61A
RIM=172.00
INV. OUT=168.00 (CB-61)

CB-61B
RIM=177.79
INV. OUT=173.29 (CB-61)

CB-60A
RIM=170.81
INV. OUT=166.31 (DMH-29)

DMH-29
RIM=168.38
INV. IN=162.01 (DMH-30)
INV. IN=162.01 (CB-60A)
INV. OUT=162.01 (DMH-28)

DMH-28
RIM=166.59
INV. IN=160.48 (DMH-29)
INV. IN=160.48 (CB-60)
INV. OUT=160.48 (DMH-27)

CB-60
RIM=164.00
INV. OUT=160.65 (DMH-28)

DMH-35
RIM=164.13
INV. IN=160.75 (DMH-36)
INV. OUT=160.75 (FES-09B)

CB-33
RIM=158.40
INV. OUT=153.31 (CB-32)

CB-32
RIM=154.67
INV. IN=152.19 (CB-33)
INV. OUT=151.94 (CB-31)

PROP. TRANSFORMER PAD (CONTRACTOR SHALL BE R COORDINATING TRANSFOR WITH UTILITY PROVIDER PRIOR TO ROUGHING WITH INSTALLATION OF PROP. TRANSFORMER PAD)

FES-09A
INV = 160.00

FES-09B
INV = 160.00

FES-09
INV = 158.00

OCS-09
RIM=162.00
INV. OUT=158.20 (FES-09)

PROP. BASIN #9

TOP OF BASIN
ELE=153.40

TOP OF BASIN
ELE=151.40

100.0' VERNAL POOL BUFFER

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

WETLAND

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE NRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE NRAD PLANS PREPARED BY OTHERS)

1"= 40'

811
Know what's below.
Call before you dig.

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

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REV	DATE	COMMENT	BY
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2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/08/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
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CONNECTICUT LICENSE No. 23090
NEW HAMPSHIRE LICENSE No. 14090
MAINE LICENSE No. 12090
NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE No. 66202

SHEET TITLE:
UTILITY PLAN E

SHEET NUMBER:
29
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

N W E S

MATCH LINE - SHEETS E/F

MATCH LINE - SHEETS F/G

MATCH LINE - SHEETS A/F

BORDERING VEGETATED WETLANDS

EXISTING WETLANDS (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.) (DELINEATION BY OTHERS) (SEE ANRAD PLANS PREPARED BY OTHERS)

100.0' VERNAL POOL BUFFER

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

150.0' WETLAND BUFFER

APPROX. 100' PERIMETER BUFFER

100.0' PROPERTY BUFFER

EDGE OF WOODS (TO REMAIN)

MONITORING WELL (TYP.)

TOP OF BASIN ELE.=156.28

TOP OF BERM ELE.=158.30

TOP OF BASIN ELE.=154.00

TOP OF BASIN ELE.=149.80

TOP OF BERM ELE.=149.90

TOP OF BASIN ELE.=146.00

PROP. BASIN #10

PROP. BASIN #11

PROP. BASIN #12

FES-10A INV = 150.50

FES-10B INV = 150.50

FES-10 INV = 149.00

FES-11 INV = 145.00

FES-11A INV = 146.00

FES-12 INV = 153.00

FES-12A INV = 154.50

FES-12B INV = 154.50

OCS-10 RIM=153.00 INV. OUT=149.75 (FES-10)

OCS-11 RIM=148.40 INV. OUT=145.28 (FES-11)

OCS-12 RIM=156.80 INV. OUT=153.55 (FES-12)

CO-12A RIM=167.61 INV. IN=159.90 (CO-12B) INV. OUT=159.90 (FES-12B)

CB-69 PROP. VERTICAL GRANITE CURB INLET (TYP.)

CB-90 PROP. VERTICAL GRANITE CURB INLET (TYP.)

CB-92 RIM=183.07 INV. IN=159.81 (CB-93) INV. OUT=159.81 (DMH-46)

CB-93 RIM=183.51 INV. OUT=160.51 (CB-92)

CB-91 RIM=158.48 INV. OUT=155.85 (DMH-45)

CB-86 RIM=151.99 INV. OUT=149.00 (DMH-44)

DMH-39 RIM=154.24 INV. IN=151.38 (DMH-40) INV. OUT=151.38 (FES-10B)

CB-17 RIM=150.87 INV. OUT=147.37 (DMH-08)

CB-29 RIM=153.00 INV. OUT=

INV. OUT=146.13 (DMH-

ROAD A

ROAD G

ROAD J

PROP. LINE VALVE (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

PROP. 8" SEWER MAIN (TYP.)

PROP. GAS SERVICE (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. TEE AND GATE VALVE (TYP.)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

247 - 8" PVC @ 3.55%

225 - 8" PVC @ 2.65%

205 - 8" PVC @ 0.52%

210 - 8" PVC @ 5.90%

187 - 8" PVC @ 0.50%

181 - 8" PVC @ 1.04%

42 - 8" PVC @ 13.33%

225 - 8" PVC @ 1.50%

MAP 5 LOT 35

APPROX. LOCATION OF WATER SERVICE CONNECTION TO MAIN IN ACCORDANCE W/ TOWN OF MILLIS REQUIREMENTS. CONTRACTOR SHALL CONFIRM LOCATION OF MAIN PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO DESIGN ENGINEER.

1" = 40'

811 Know what's below. Call before you dig.

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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MAINE LICENSE No. 9400
NEW YORK LICENSE No. 072844-1
FLORIDA LICENSE No. 56202

SHEET TITLE:

UTILITY PLAN F

SHEET NUMBER:

30 OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

REFER TO THE OFF-SITE WATER LINE PLANS AND OFF-SITE SEWER LINE PLANS FOR UTILITY CONNECTIONS WITHIN ORCHARD STREET AND UTILITY UPGRADES ASSOCIATED WITH THE SITE DEVELOPMENT

N

W E

S

MATCH LINE - SHEETS G/H

MATCH LINE - SHEETS F/G

ROAD H

ROAD G

ORCHARD STREET

60 - 4" SDR-26 PVC FM @ -0.67%

59 - 8" PVC @ 0.51%

90 - 4" SDR-26 PVC FM @ -1.60%

89 - 8" PVC @ 1.49%

104 - 4" SDR-26 PVC FM @ -6.66%

104 - 8" PVC @ 5.32%

85 - 4" SDR-26 PVC FM @ -5.80%

82 - 8" PVC @ 5.74%

125 - 4" SDR-26 PVC FM @ -0.50%

124 - 8" PVC @ 0.50%

132 - 4" SDR-26 PVC FM @ -0.50%

165 - 8" SDR-26 PVC FM @ -0.50%

138 - 8" PVC @ 3.79%

OCS-13
RIM=171.25
INV. OUT=168.12 (FES-13)

FES-13
INV.= 169.00

OCS-24
RIM=158.50
INV. IN=154.95 (DMH-71)

DMH-48A
RIM=172.24
INV. IN=169.82 (DMH-48)
INV. OUT=169.82 (FES-13A)

CO-12C
RIM=174.01
INV. OUT=169.71 (CO-12B)

CO-12B
RIM=173.16
INV. IN=169.00 (CO-12C)
INV. OUT=169.00 (CO-12A)

FES-13A
INV.= 169.00

SCORDERING VEGETATED WETLANDS

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

50.0' WETLAND BUFFER

100.0' WETLAND BUFFER

100.0' VERNAL POOL BUFFER

APPROX. 100' PERIMETER BUFFER

MONITORING WELL (TYP.)

TOP OF BASIN
ELE.=171.96

PROP. BASIN #13

PROP. GAS SERVICE (TYP.)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. TEE AND GATE VALVE (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

PROP. 8" SEWER MAIN (TYP.)

EDGE OF WOODS (TO REMAIN)

EDGE OF WOODS (TBR)

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX)

APPROX. 50' EXISTING GAS EASEMENT

APPROX. EXISTING GAS LINE

MAP 1 LOT 4

MAP 1 LOT 5
N/F
KAMIL ALACHI
&
DANIELLE ALACHI

MAP 5 LOT 1
N/F
GREGORY R. DOHERTY JR.
&
CAROLYN DOHERTY

MAP 5 LOT 8
N/F
EDWARD M. SCHAFFER
&
VIRGINIA L. SCHAFFER

MAP 5 LOT 28
N/F
JAMES R. MURRAY
&
MINDY SHEFTS MURRAY

DWELLING

POOL

CB/DH FND

APPROX. LOCATION OF WATER SERVICE CONNECTION TO MAIN IN ACCORDANCE W/ TOWN OF MILLIS REQUIREMENTS. CONTRACTOR SHALL CONFIRM LOCATION OF MAIN PRIOR TO CONSTRUCTION AND REPORT AND DISCREPANCIES TO DESIGN ENGINEER.

CONNECT ELECTRIC AND COMMUNICATION SERVICES PER UTILITY OWNERS REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION CONNECTION REQUIREMENTS WITH UTILITY PROVIDER PRIOR TO PROCEEDING WITH INSTALLATION OF PROP. ELECTRIC AND COMMUNICATION SERVICE.

811
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40 20 10 0 40
1"= 40'

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- BOSTON, MA — CHARLOTTE, NC — RICHMOND, VA
- DENVER, METRO — SOUTHEASTERN, PA — RALEIGH, NC
- NEW YORK, NY — SUSQUEHANNA, PA — CHARLESTON, SC
- NEW JERSEY — BALTIMORE, MD — TAMPA, FL
- SOUTHERN MARYLAND — SOUTH FLORIDA

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REV	DATE	COMMENT	BY
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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
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MAINE LICENSE NO. 9480
NEW YORK LICENSE No. 021284-1
FLORIDA LICENSE NO. 86202

SHEET TITLE:

UTILITY PLAN G

SHEET NUMBER:

31
OF 85

REV 5 - 08/11/2017

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

N
W
E
S

MAP 6 BLOCK 2 LOT 17A
N/F
WILLIAM C. HARRINGTON
&
DIANA R. HARRINGTON

MAP 1
LOT 2

MAP 1
LOT 2

HOLLISTON
MILLIS

MATCH LINE - SHEETS H/I

MATCH LINE - SHEETS G/H

MATCH LINE - SHEETS E/H

ROAD H

BORDERING VEGETATED WETLAND

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

MONITORING WELL (TYP.)

PROP. BASIN #19

PROP. BASIN #14

PROP. GENERATOR
(SEE PLANS DESIGNED BY OTHERS)

PROP. PUMP STATION - 2
6 - 4" SDR-26 PVC FM @ -0.64%
VALVE CHAMBER - 2

PROP. GAS SERVICE (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. LINE VALVE (TYP.)

TOP OF BASIN ELE.=164.35

TOP OF BASIN ELE.=160.50

TOP OF BERM ELE.=160.50

APPROX. 100' PERIMETER BUFFER

100.0' WETLAND BUFFER

50.0' WETLAND BUFFER

100.0' VERNAL POOL BUFFER

FES-19A INV = 161.00

FES-19 INV = 160.00

FES-14A INV = 156.50

FES-14B INV = 156.50

FES-14 INV = 155.00

OCS-19 RIM=163.20 INV. OUT=160.45 (FES-19)

OCS-14 RIM=159.40 INV. OUT=156.15 (FES-14)

CB-120 DMH-67 CB-121 CB-102 CB-101 CB-106 CB-105 DMH-55 DMH-52 DMH-53 DMH-51 SMH-76 SMH-75 SMH-74 SMH-73 SMH-72 SMH-71 SMH-70 SMH-69 SMH-68 SMH-50

8" PVC @ 0.50% 12" PVC @ 0.50% 18" PVC @ 0.50% 24" PVC @ 0.50% 8" PVC @ 0.50% 8" PVC @ 1.00% 8" PVC @ 0.51% 8" PVC @ 0.52% 4" SDR-26 PVC FM @ -0.26% 8" PVC @ 0.50% 4" SDR-26 PVC FM @ -0.13% 4" SDR-26 PVC FM @ -0.63% 8" PVC @ 0.50% 4" SDR-26 PVC FM @ -0.67% 8" PVC @ 0.51%

247 246 245 244 243 242 241 305 306

811
Know what's below.
Call before you dig.

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PHILADELPHIA, PA
LEHIGH VALLEY, PA
CENTRAL JERSEY
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CENTRAL VIRGINIA
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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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SHEET TITLE:

UTILITY PLAN H

SHEET NUMBER:

32
OF 85

REV 5 - 08/11/2017

40 20 10 0 40
1"= 40'

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

REFER TO PLAN AND PROFILE SHEETS FOR SUBSURFACE UTILITY INFRASTRUCTURE DETAILS

N
W
E
S

HOLLISTON
MILLIS

MAP 9 BLOCK 6 LOT 62
N/F
BENEDETTO A. MIELE, JR
&
PATRICIA A. MIELE

POOL

MAP 9 BLOCK 6 LOT 61
N/F
JEFFREY C. HASTIE
&
ANGELA C. HASTIE

MAP 6 BLOCK 2 LOT 90
N/F
DONALD LUNNY
&
KATHLEEN M. LUNNY

6 BLOCK 2 LOT 89
N/F
OHN H. KOSIAN
&
NITA McFADDEN

CB/DH FND

SB/FND

APPROX. 100' PERIMETER BUFFER

BORDERING VEGETATED WETLANDS

EXISTING WETLANDS (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

50'/ WETLAND BUFFER

100'/ WETLAND BUFFER

100'/ VERNAL POOL BUFFER

MATCH LINE - SHEETS D/I

MATCH LINE - SHEETS H/I

TOP OF BERM
ELE.=169.10

TOP OF BASIN
ELE.=169.00

FES-17
INV = 164.00

OCS-17
RIM=168.60
INV. OUT=164.50 (FES-17)

PROP. BASIN #17

MONITORING WELL (TYP.)

FES-17A
INV = 166.00

CB-116

CB-115

DMH-63

SMH-82

PROP. ELECTRIC, CABLE, AND TELEPHONE SERVICES (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

CB-114

SMH-81

DMH-62

CB-113

ROAD I

DMH-61

SMH-80

CB-112

SMH-83

PROP. GAS SERVICE (TYP.)

SMH-79

CB-111

PROP. TEE AND GATE VALVE (TYP.)

PROP. HYDRANT WITH GATE VALVE (TYP.)

PROP. 8" CLDI WATER MAIN (TYP.)

PROP. 4" SEWER SERVICE (TYP.)

ROAD H

PROP. 6" SEWER MAIN (TYP.)

PROP. 1" WATER SERVICE AND CURB STOP (TYP.)

SMH-78

CB-110

SMH-77

CB-109

SMH-76

DMH-59

CB-108

SMH-84

CB-107

SMH-85

CB-106

PROP. BASIN #16

PROP. BASIN #16A

PROP. BASIN #15

FES-16
INV = 162.60

FES-16A
INV = 166.50

FES-168
INV = 163.40

TOP OF BASIN
ELE.=169.60

TOP OF BERM
ELE.=170.00

TOP OF BASIN
ELE.=162.70

TOP OF BERM
ELE.=162.80

95 - 4" SDR-26 PVC FM @ 1.84%

162 - 8" PVC @ 0.50%

160 - 8" PVC @ 0.50%

162 - 8" PVC @ 1.45%

173 - 8" PVC @ 0.50%

158 - 8" PVC @ 0.50%

89 - 8" PVC @ 0.50%

MAP 1
LOT 4

BORDERING VEGETATED WETLANDS

EXISTING VERNAL POOL (TYP.)
(DELINEATION BY OTHERS)
(SEE ANRAD PLANS PREPARED BY OTHERS)

BORDERING VEGETATED WETLANDS

Know what's below.
Call before you dig.

40 20 10 0 40
1" = 40'

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3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SD5

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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MAINE LICENSE NO. 2400
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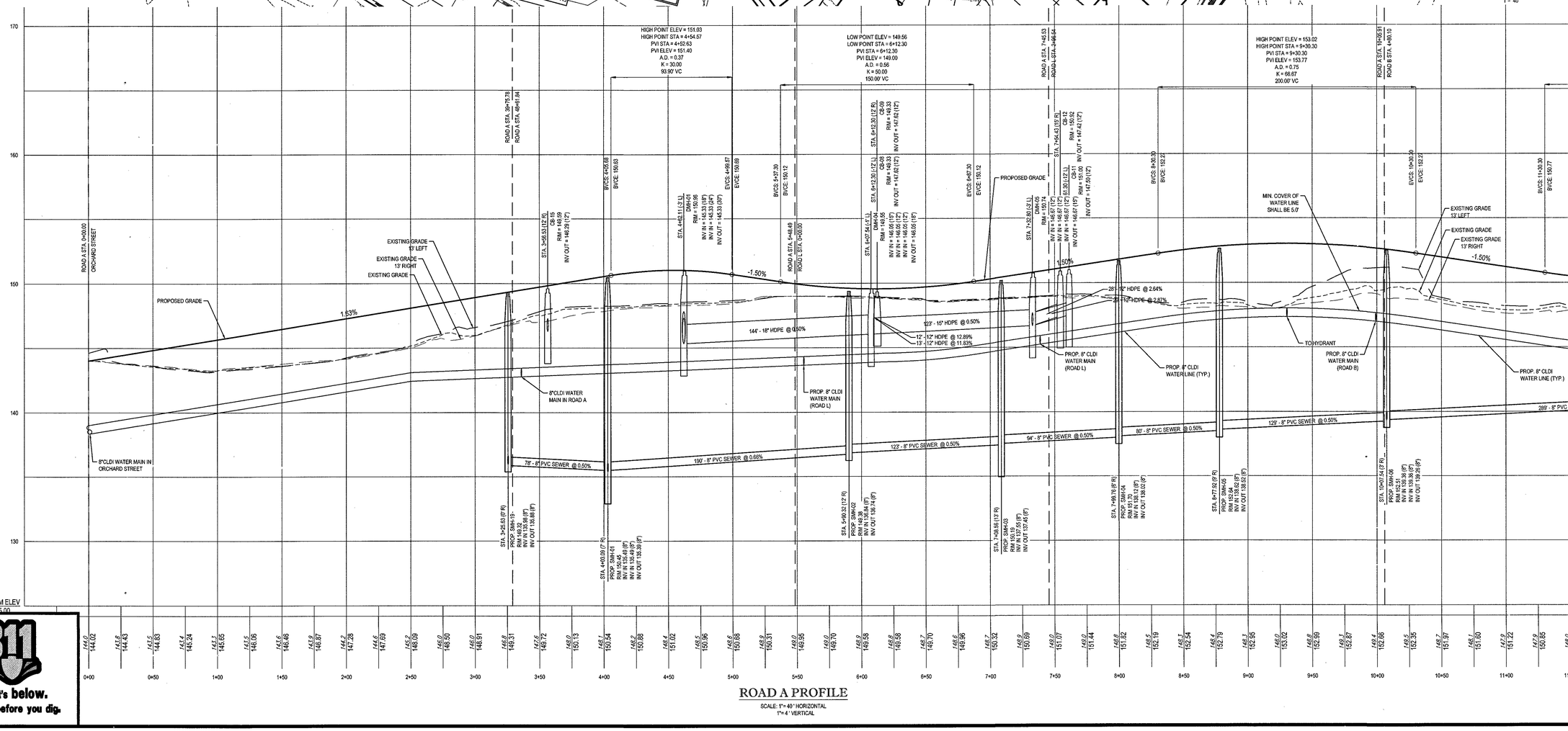
FLORIDA LICENSE No. 66202

SHEET TITLE:
UTILITY PLAN I

SHEET NUMBER:
33
OF 85

REV 5 - 08/11/2017



ROAD A PROFILE

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

811
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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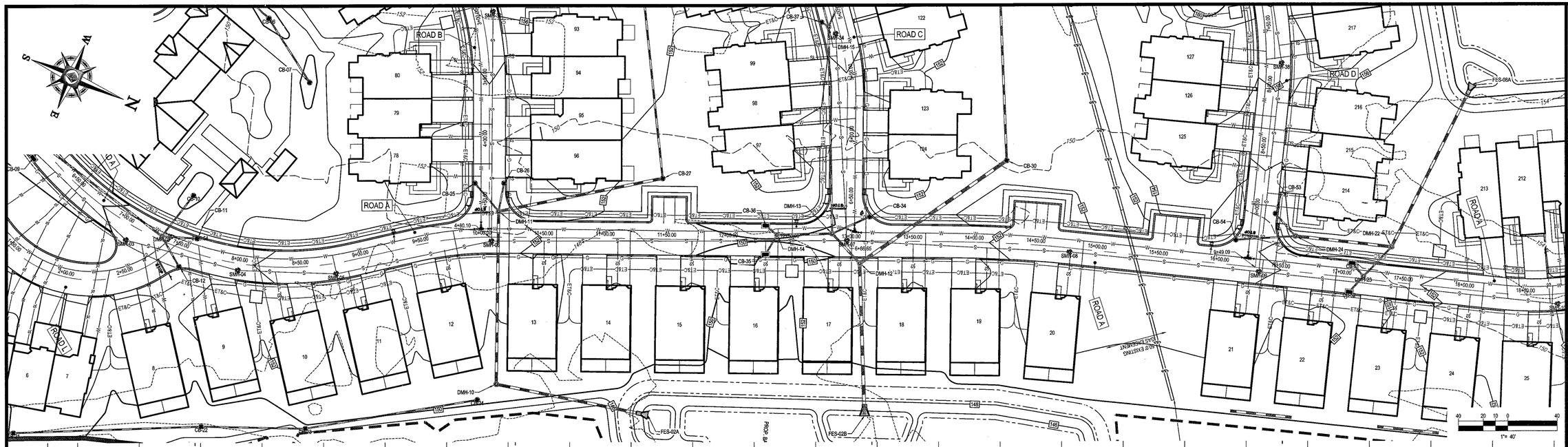
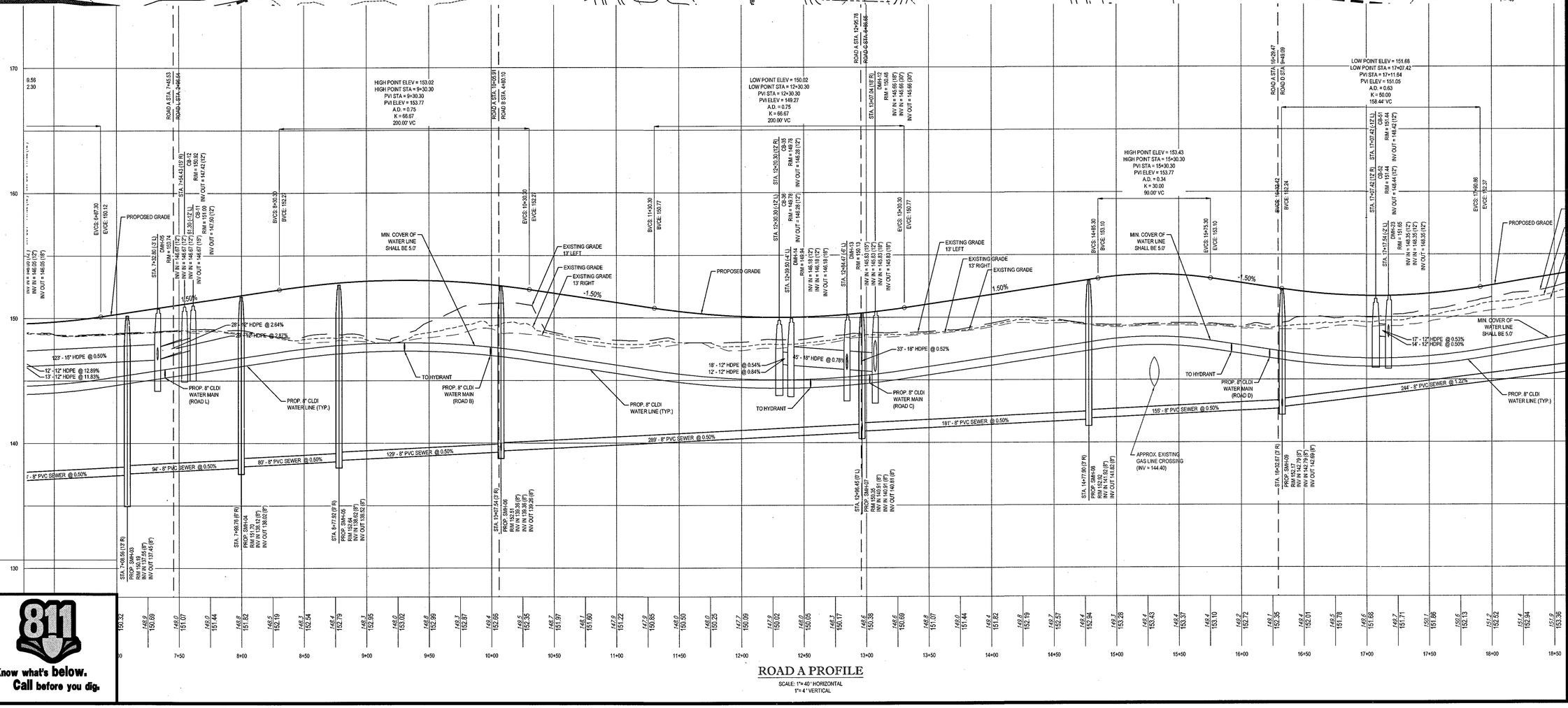
SHEET TITLE:
ROAD A PLAN AND PROFILE A

SHEET NUMBER:
34
OF 85

REV 5 - 08/11/2017





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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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SHEET TITLE:
ROAD A PLAN AND PROFILE B

SHEET NUMBER:
35
OF 85

REV 5 - 08/11/2017

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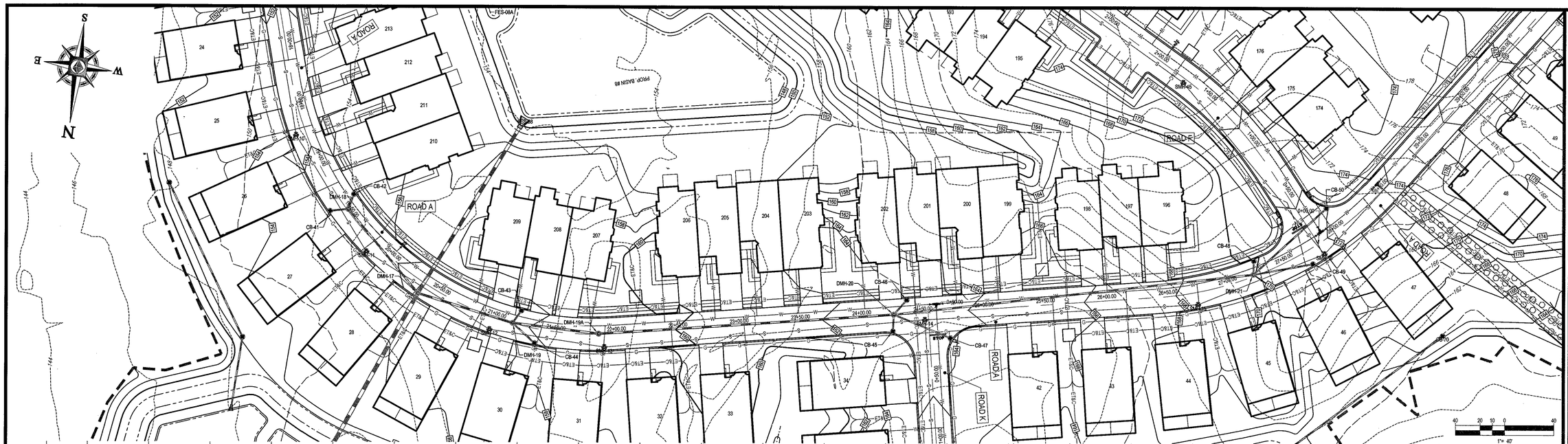

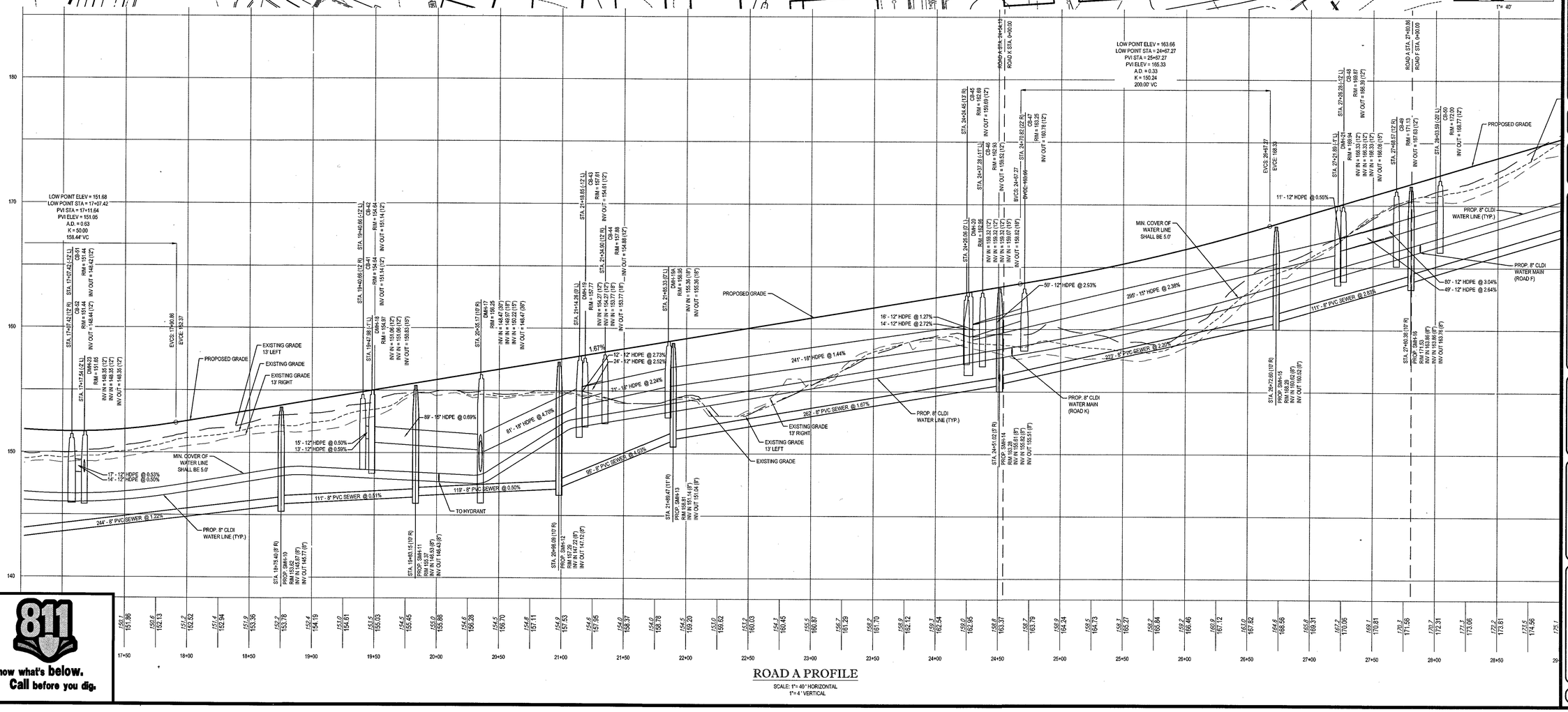

ROAD A PROFILE

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

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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SHEET TITLE:

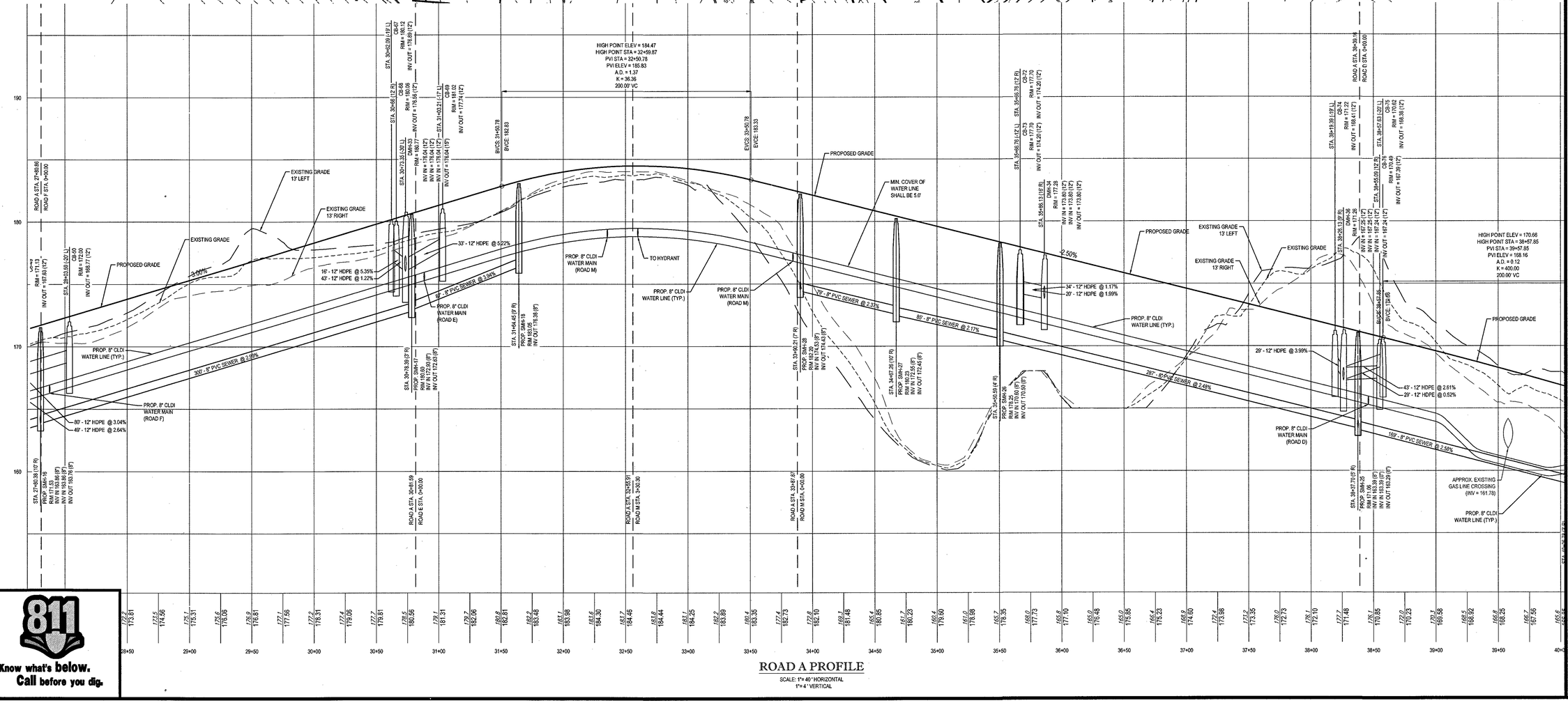
ROAD A PLAN AND PROFILE C

SHEET NUMBER:

36

OF 85

REV 5 - 08/11/2017



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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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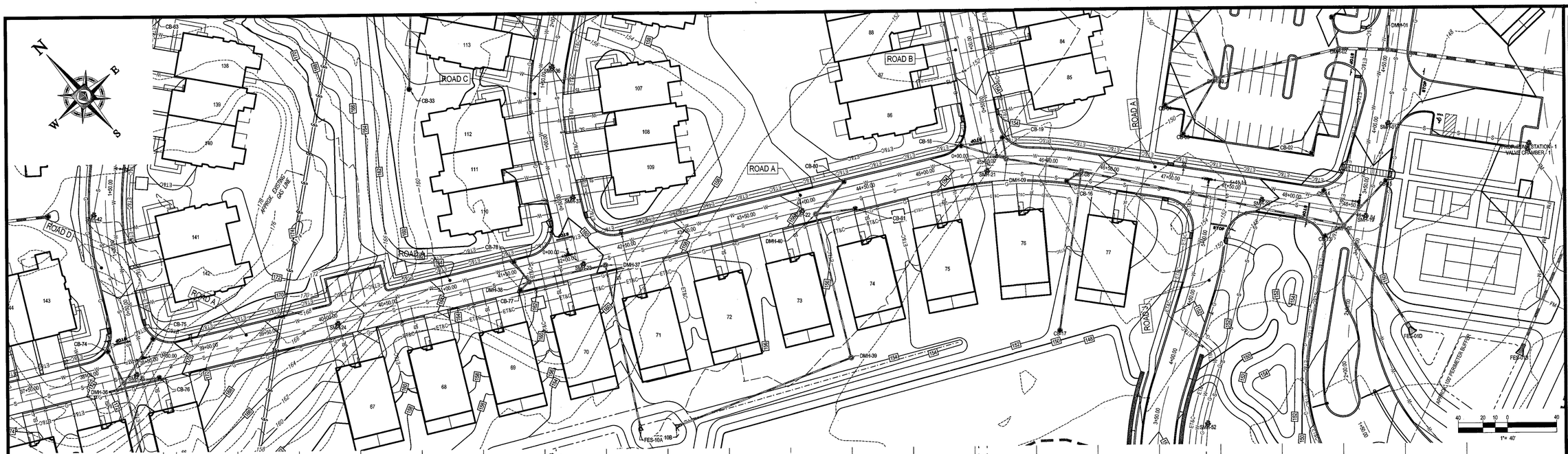
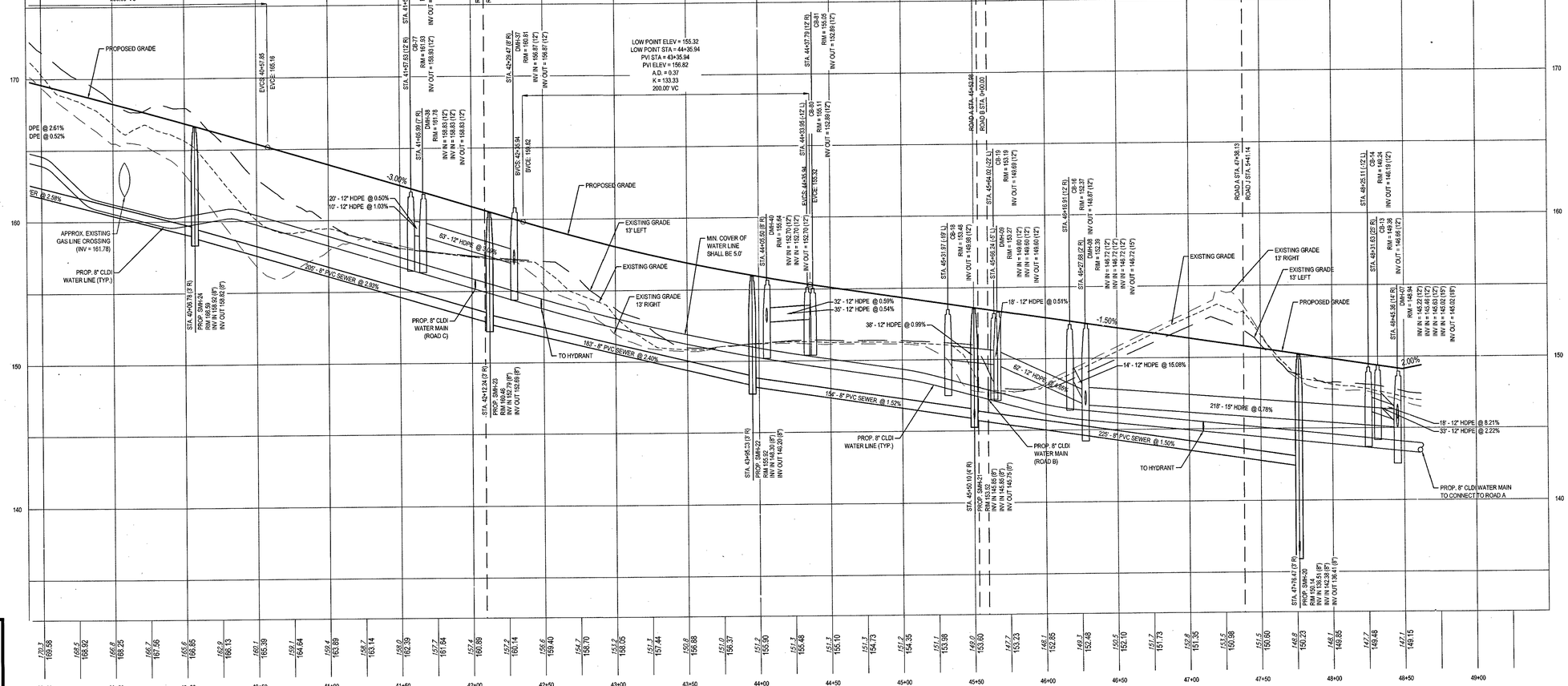
FLORIDA LICENSE No. 66202

SHEET TITLE:
ROAD A PLAN AND PROFILE D

SHEET NUMBER:
37
OF 85

REV 5 - 08/11/2017





ROAD A PROFILE

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

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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
ROAD A PLAN AND PROFILE E

SHEET NUMBER:
38
OF 85

REV 5 - 08/11/2017

ROAD A
ROAD B
PROP. BASIN #2
DMH-39
DMH-40
DMH-09
DMH-08
DMH-14
DMH-1
DMH-10
CB-80
CB-81
CB-18
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CB-17
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CB-27
CB-26
CB-25
CB-36
CB-35
SMH-38
SMH-37
SMH-35
SMH-34
SMH-33
SMH-06
FES-10A
FES-10B
FES-02B
FES-02A
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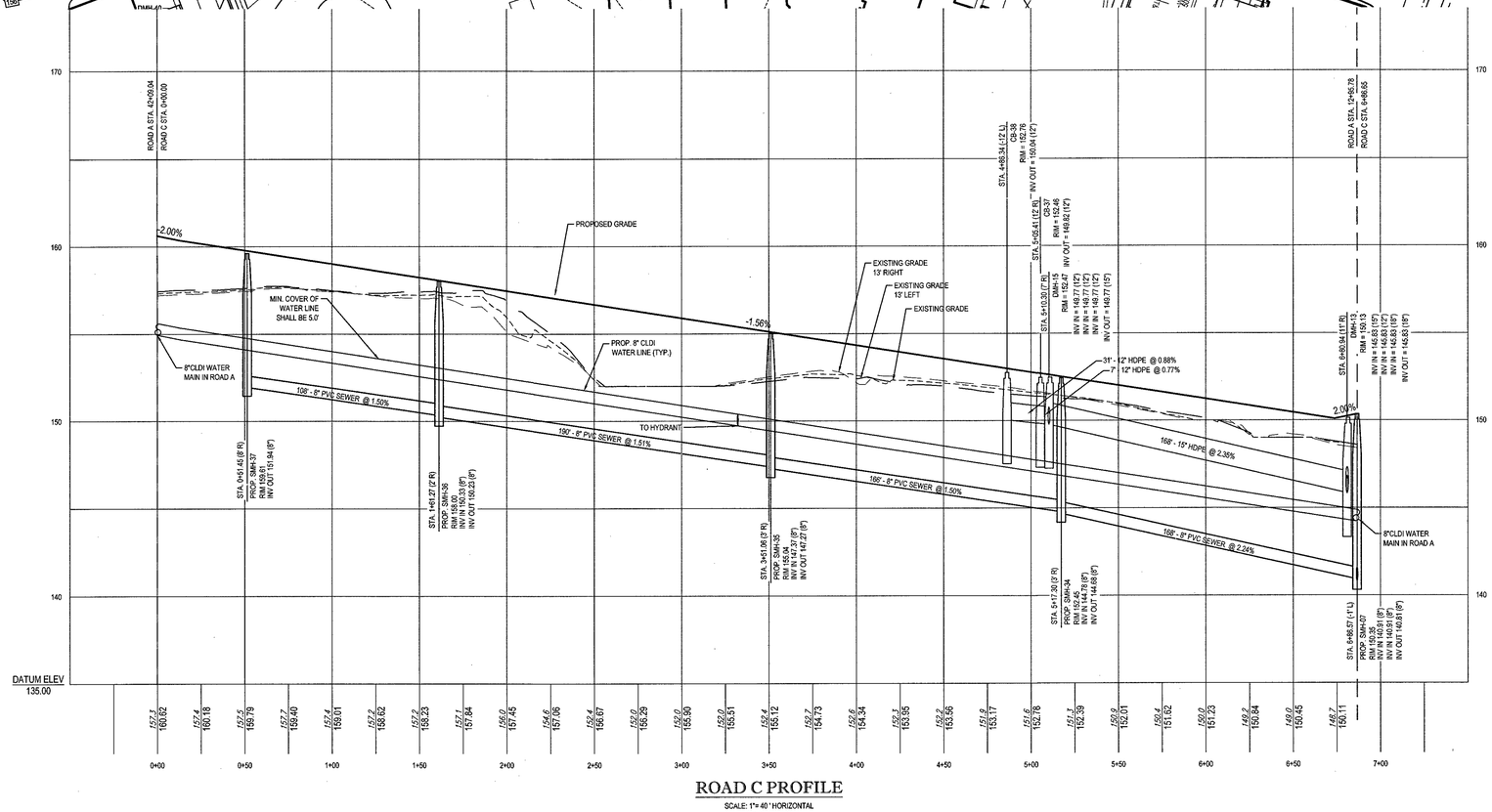
4'x6'00.00' W
4'x4'00.00' W
4'x4'00.00' W
4'x4



ROAD C PROFILE

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

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Know what's below.
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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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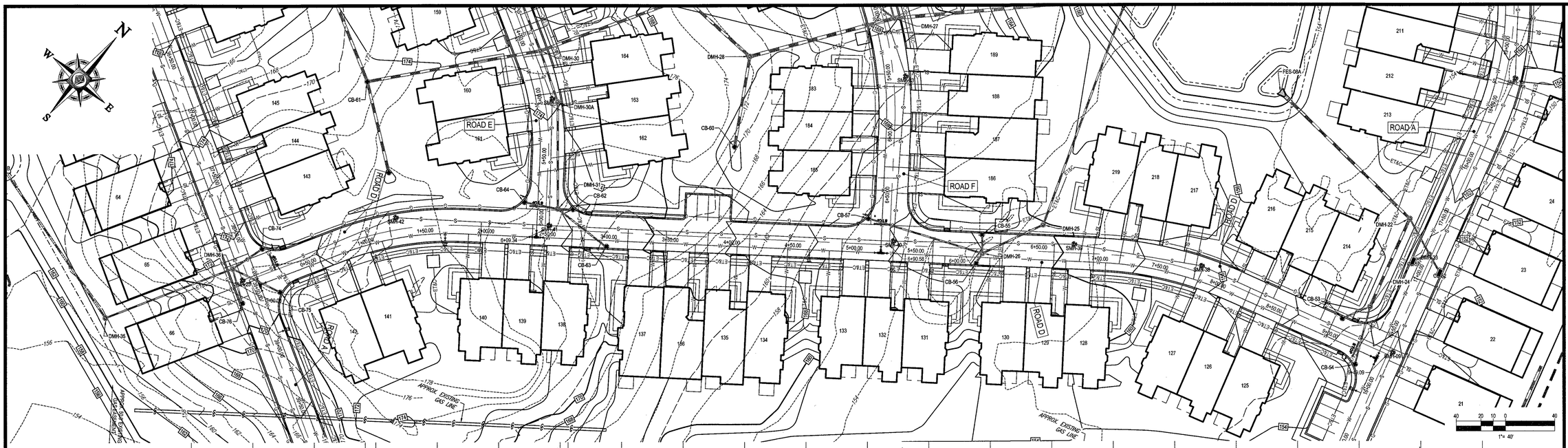
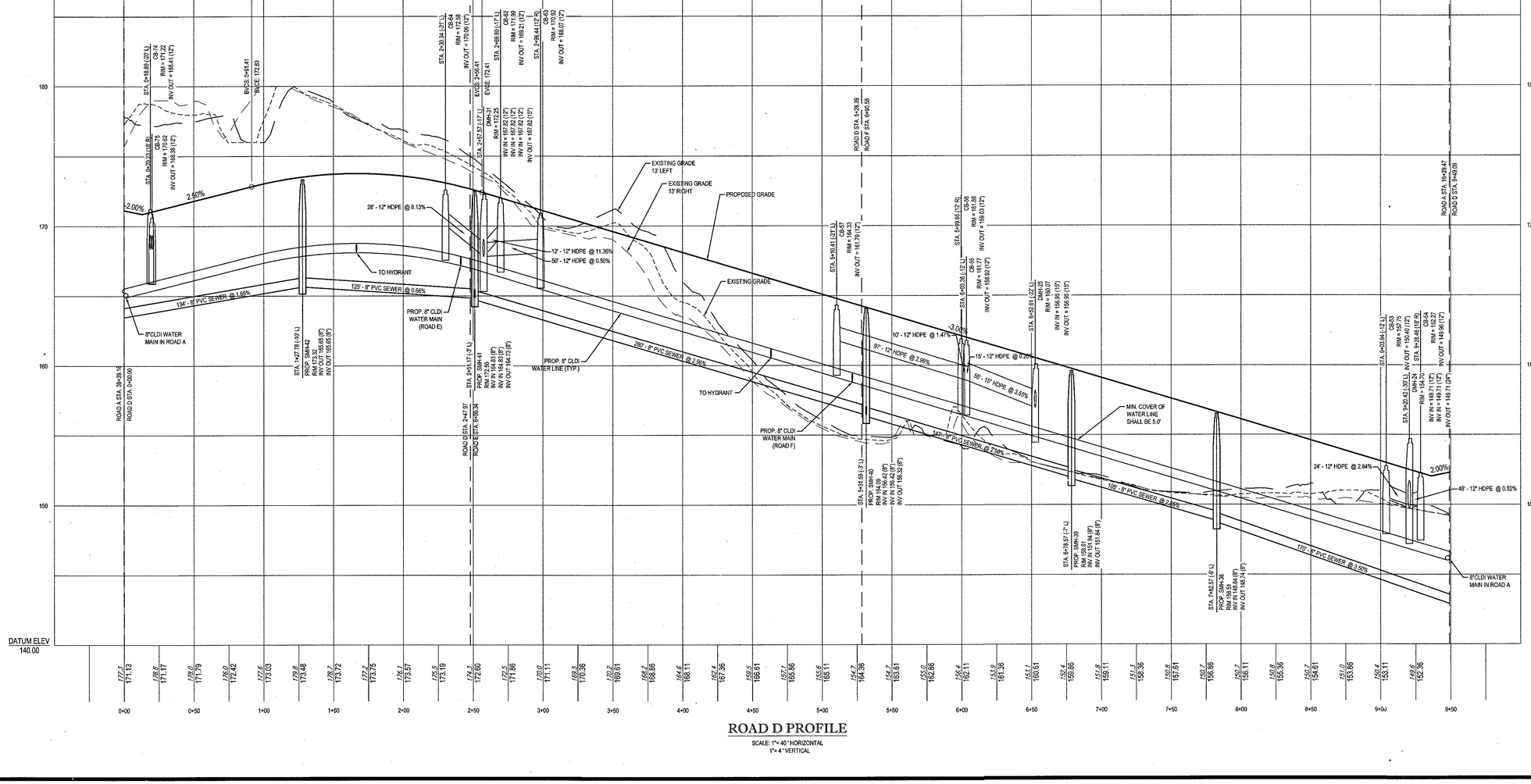
SHEET TITLE:
ROAD C PLAN AND PROFILE

SHEET NUMBER:
40
OF 85

REV 5 - 08/11/2017





ROAD D PROFILE

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

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DEFINITIVE SET

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DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

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SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
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SHEET TITLE:

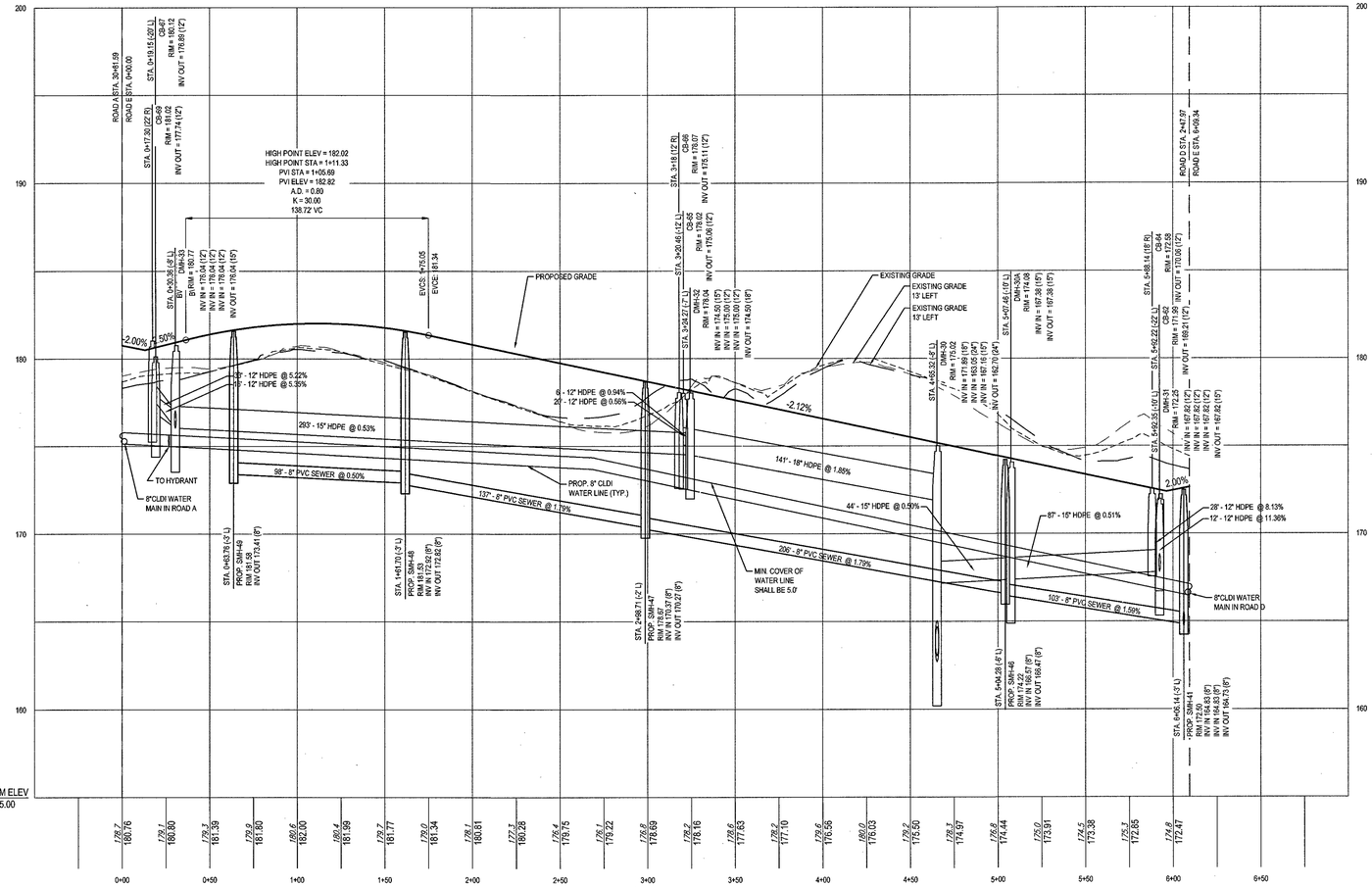
ROAD D PLAN AND PROFILE

SHEET NUMBER:

41

OF 85

REV 5 - 08/11/2017



ROAD E PROFILE

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

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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_PROFILES

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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SHEET TITLE:

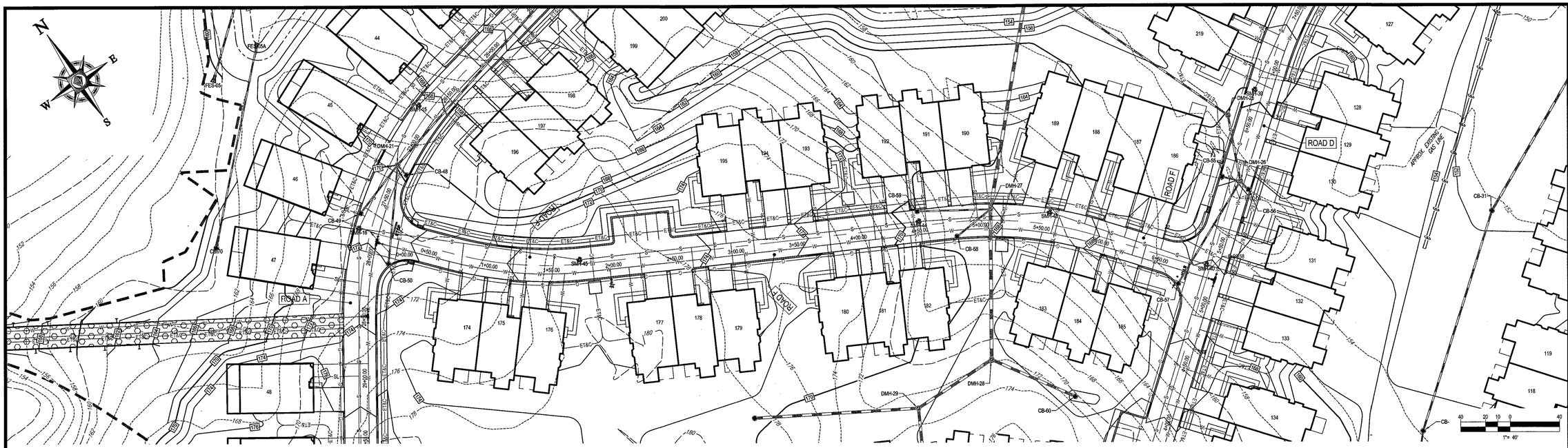
ROAD E PLAN AND PROFILE

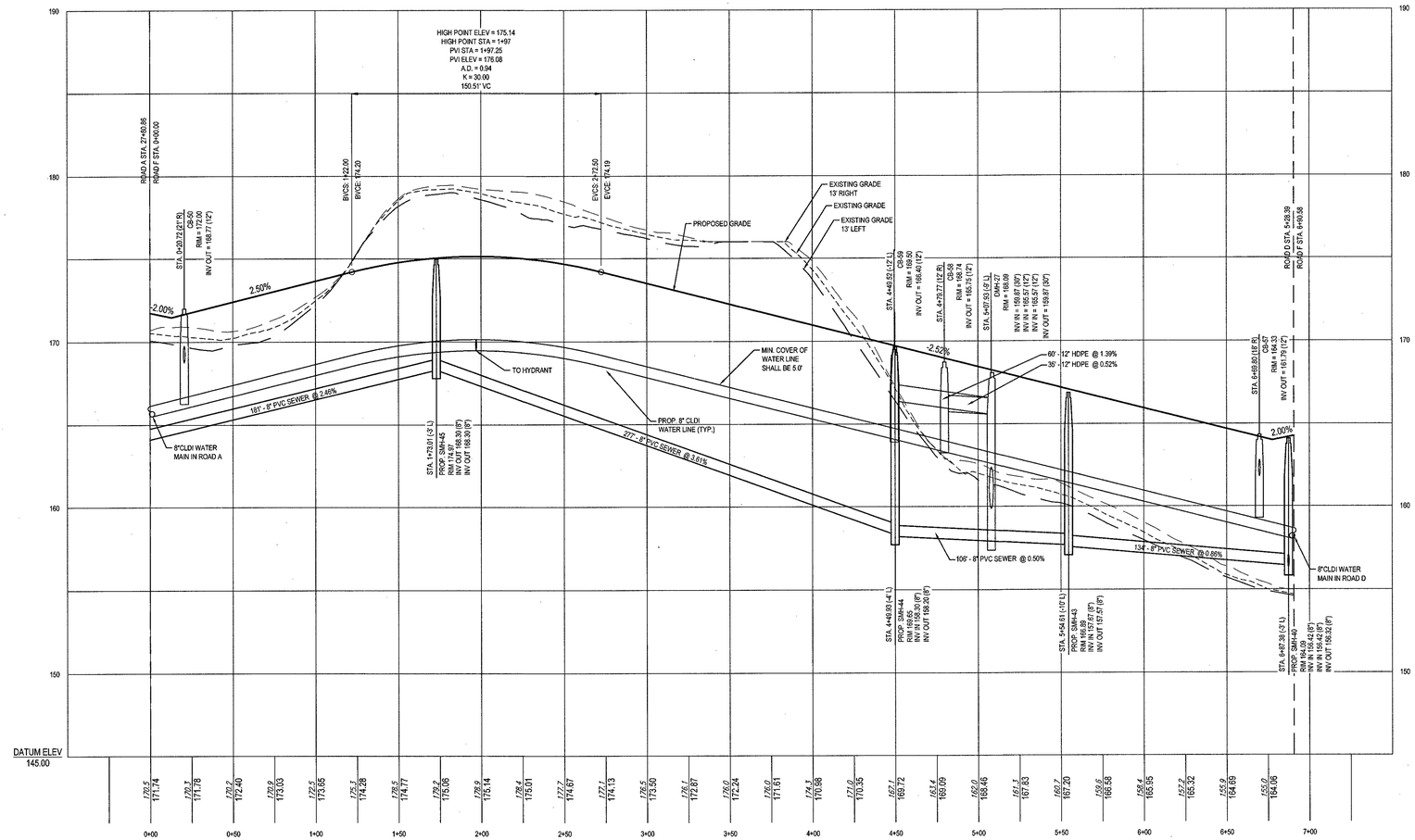
SHEET NUMBER:

42

OF 85

REV 5 - 08/11/2017





ROAD F PROFILE

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

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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
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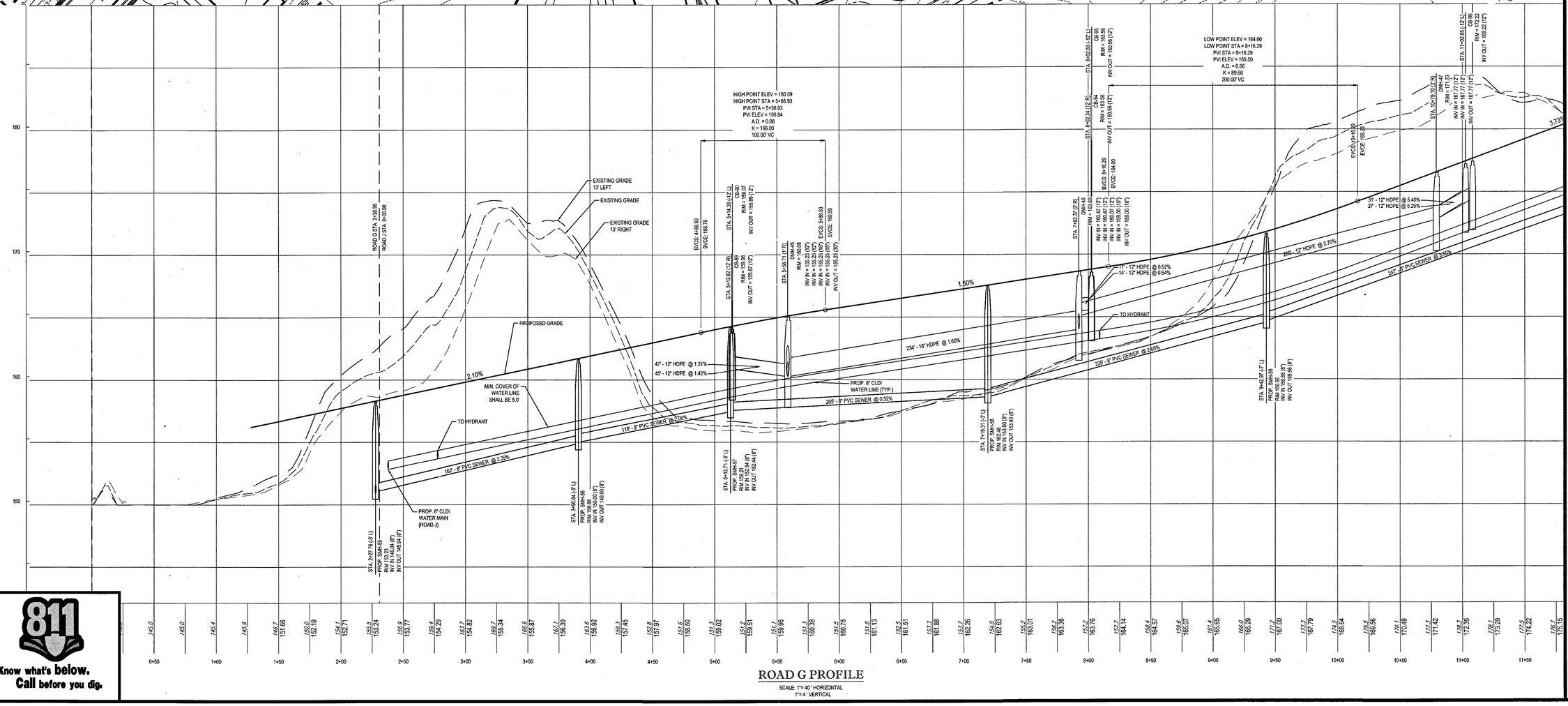
FLORIDA LICENSE No. 66202

SHEET TITLE:
ROAD F PLAN AND PROFILE

SHEET NUMBER:
43
OF 85

REV 5 - 08/11/2017



ROAD G PROFILE

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

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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
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SHEET TITLE:
ROAD G PLAN AND PROFILE A

SHEET NUMBER:
44
OF 85

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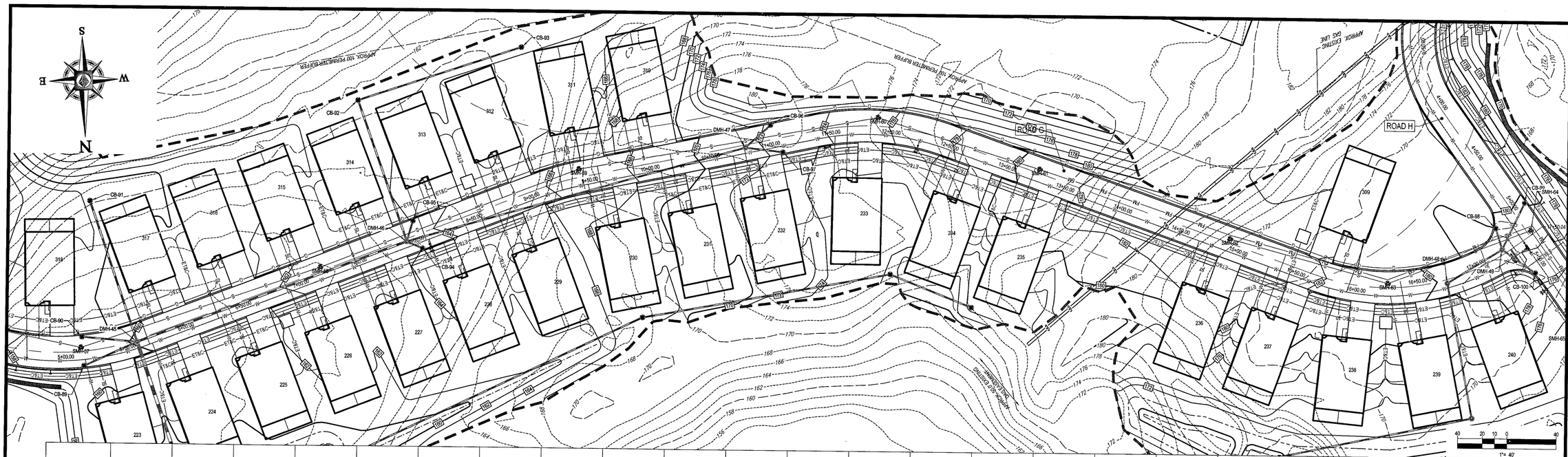

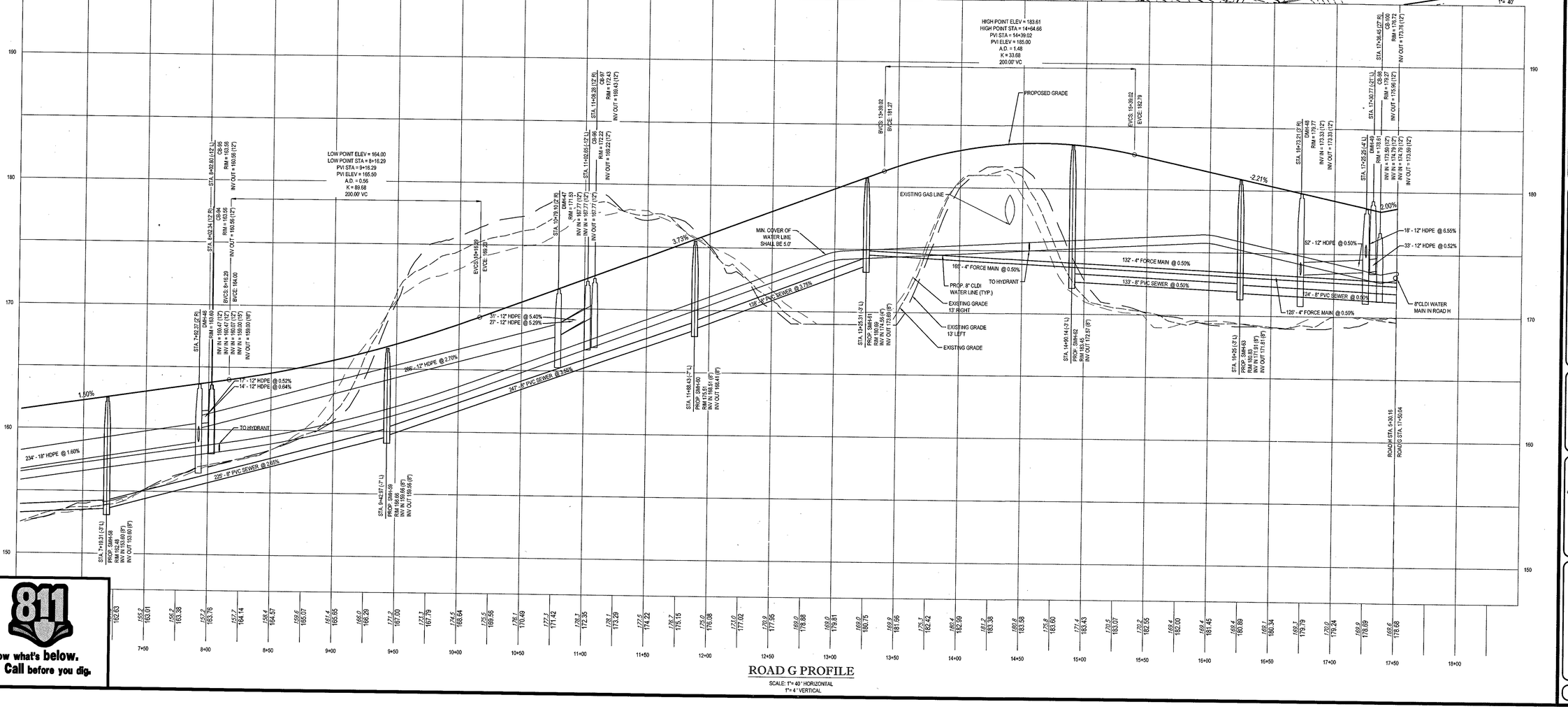

ROAD G PROFILE

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

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DEFINITIVE SET

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SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
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MAP# 05, LOT# 35
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SHEET TITLE:

ROAD G PLAN AND PROFILE B

SHEET NUMBER:

45
OF 85

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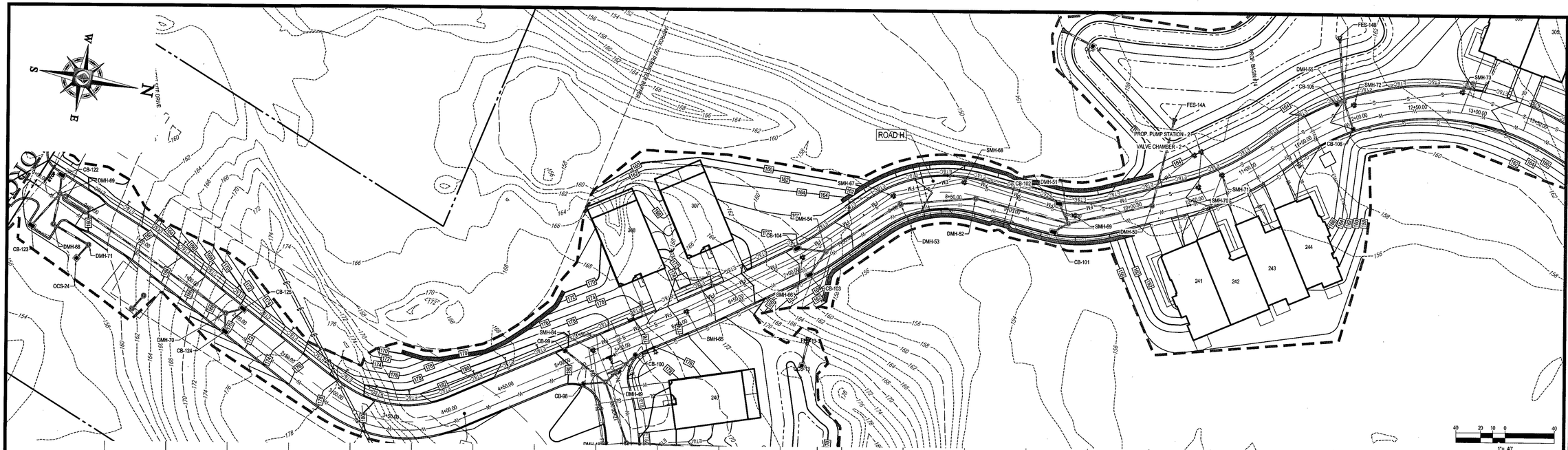

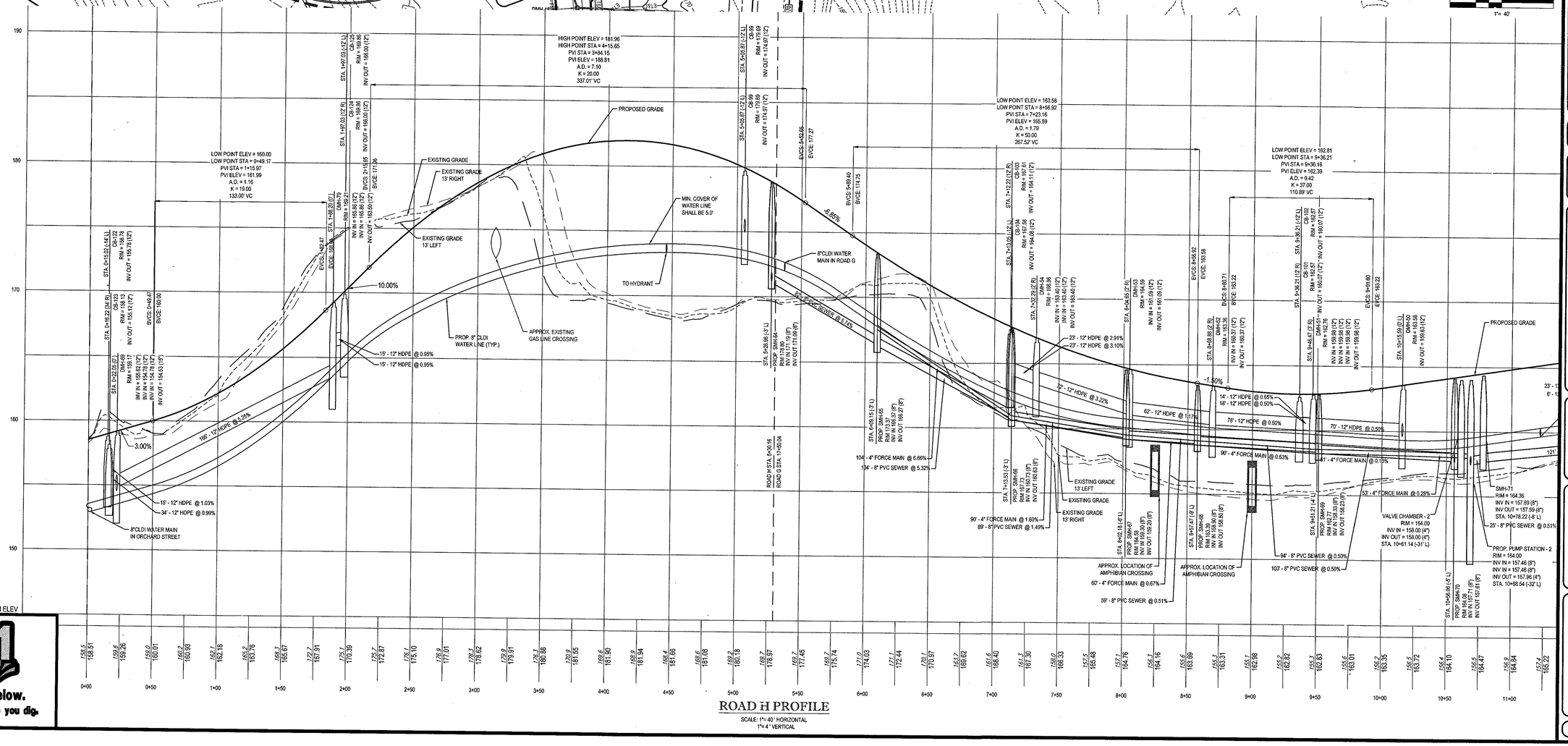

ROAD H PROFILE

SCALE: 1"= 40 ' HORIZONTAL
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DEFINITIVE SET

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SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
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MAP# 05, LOT# 35
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NORFOLK COUNTY,
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SHEET TITLE:

ROAD H PLAN AND PROFILE A

SHEET NUMBER: 46 OF 85

REV 5 - 08/11/2017

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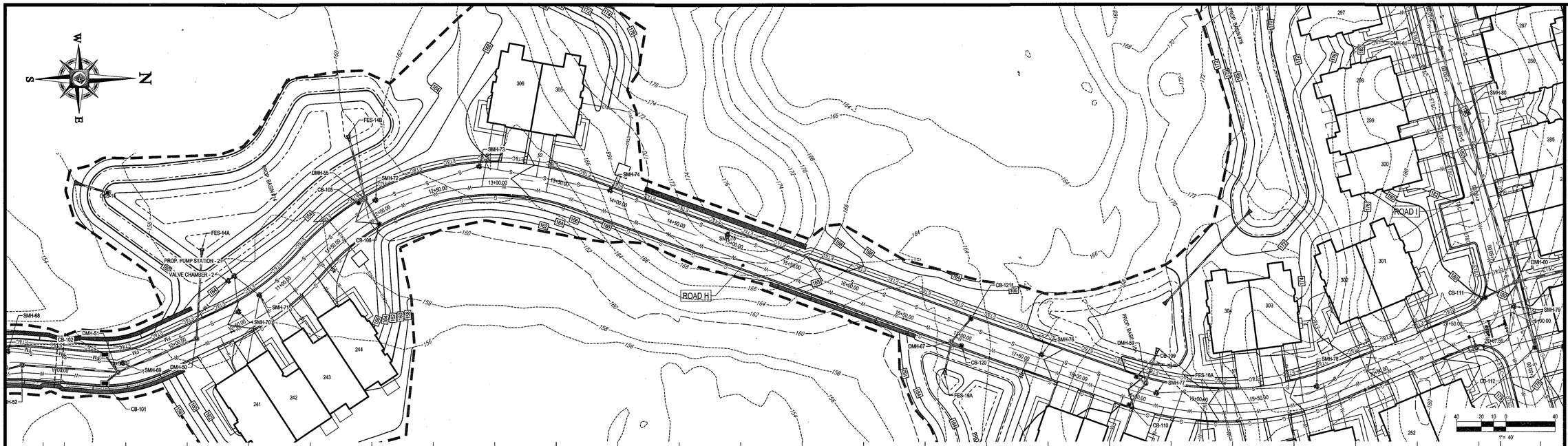

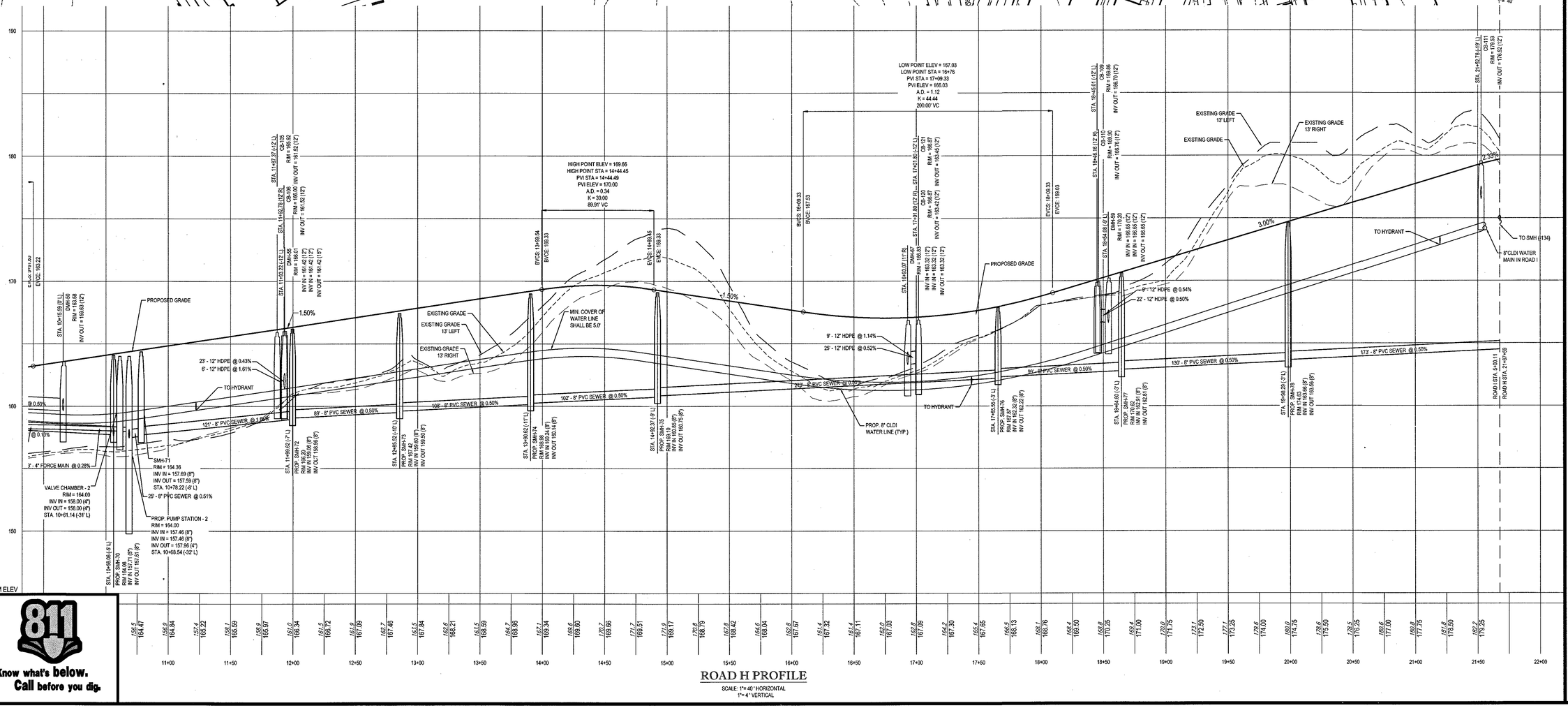

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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOTS# 25
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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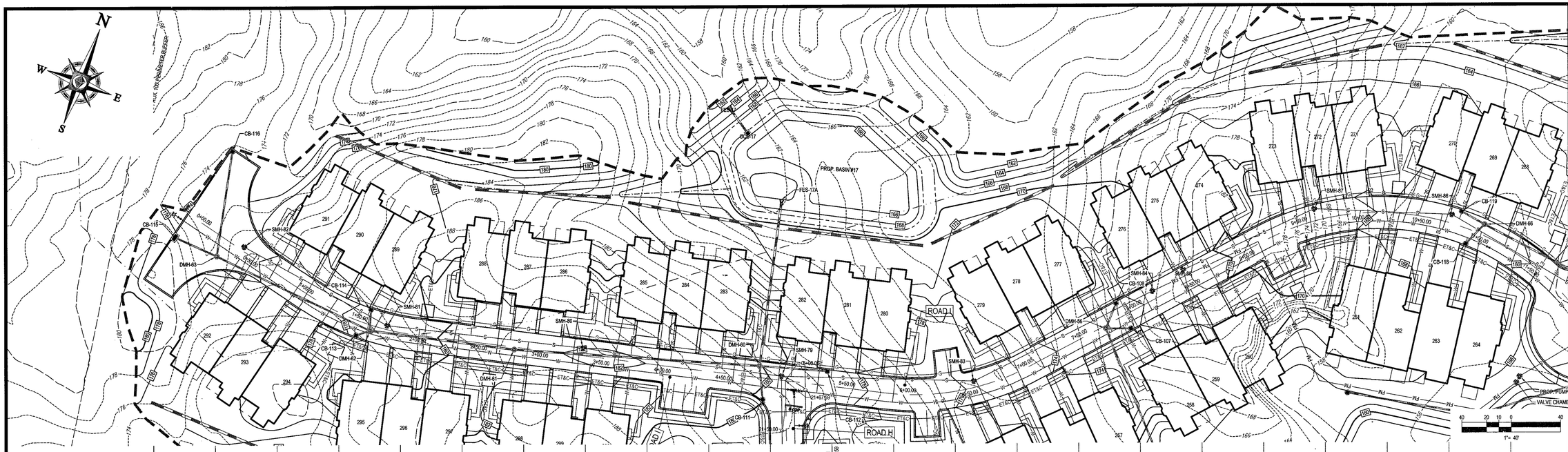
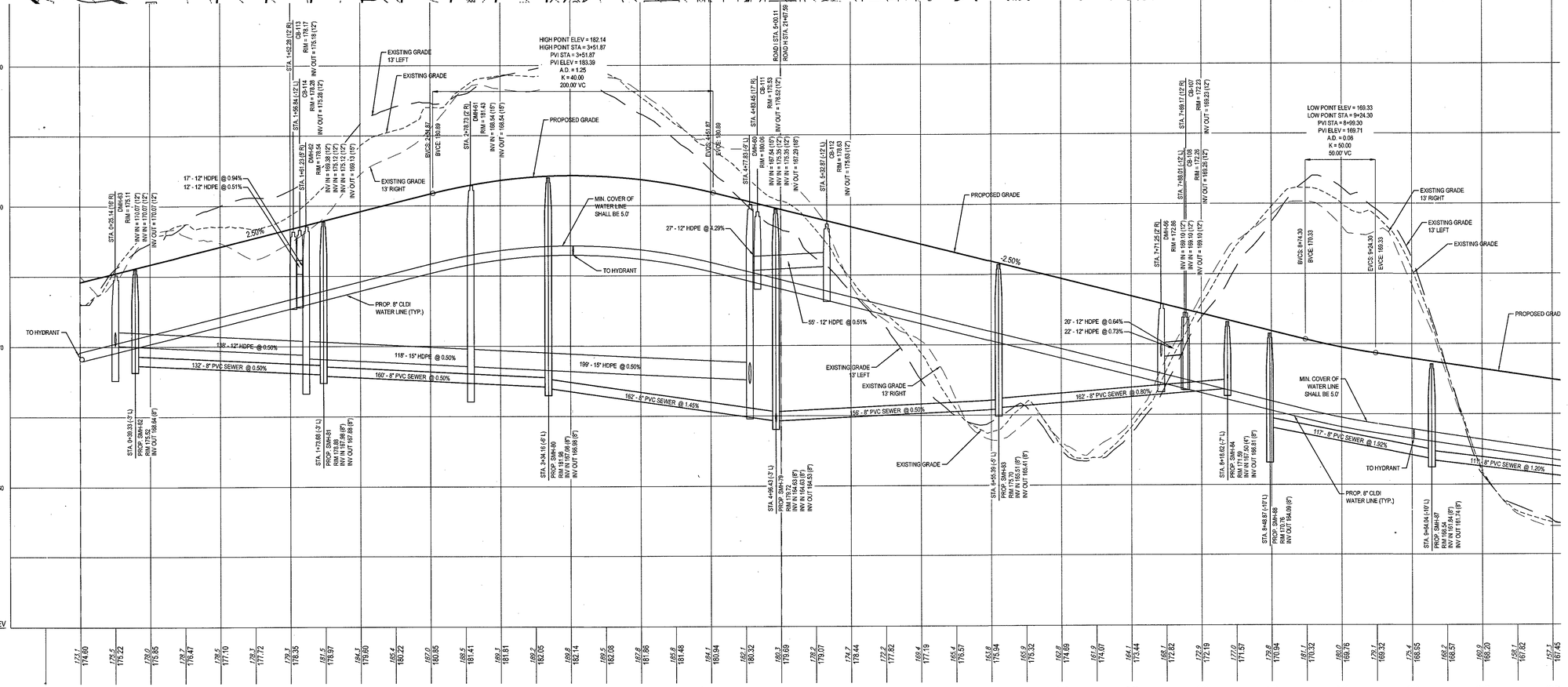
FLORIDA LICENSE No. 86202

SHEET TITLE:
ROAD H PLAN AND PROFILE B

SHEET NUMBER:
47
OF 85

REV 5 - 08/11/2017





ROAD I PROFILE

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

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3	05/08/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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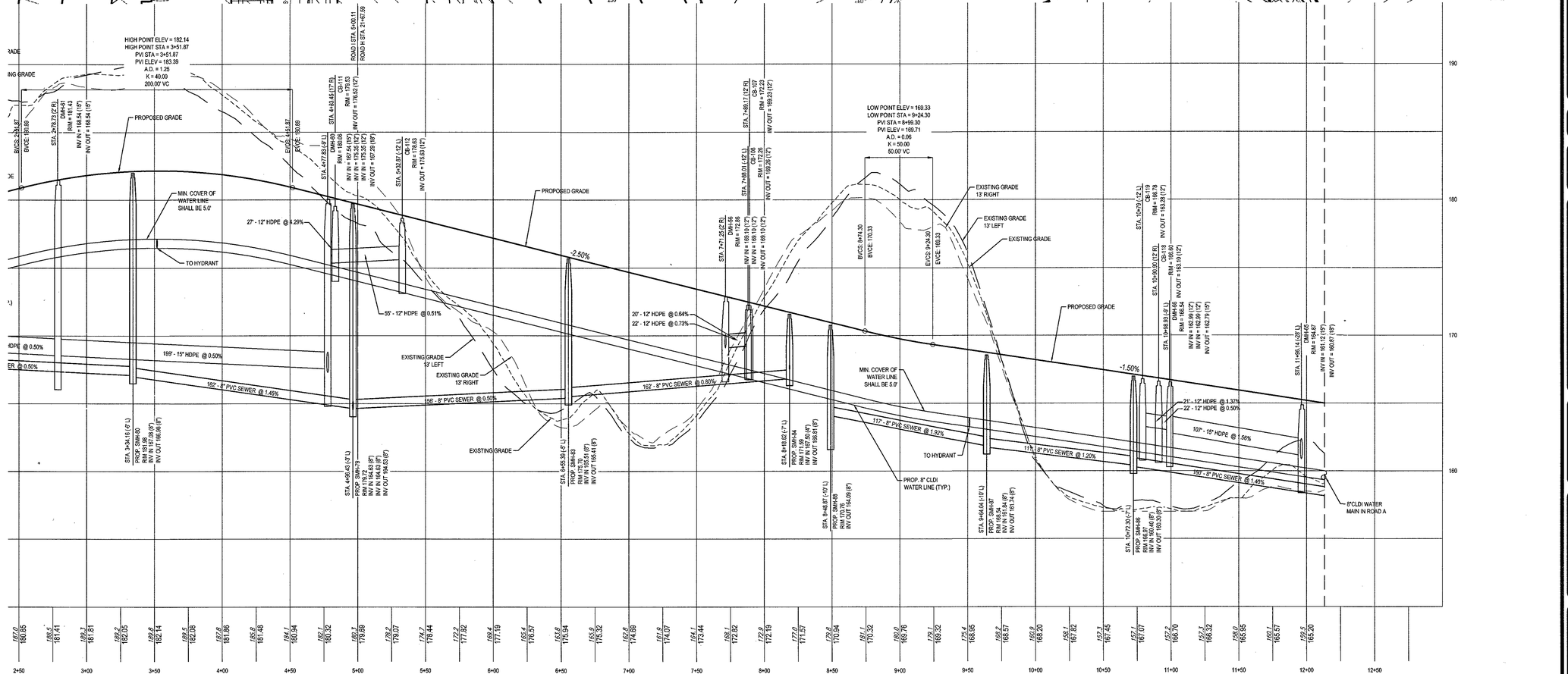
SHEET TITLE:
ROAD I PLAN AND PROFILE A

SHEET NUMBER:
48
OF 85

REV 5 - 08/11/2017



ROAD I PROFILE

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

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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

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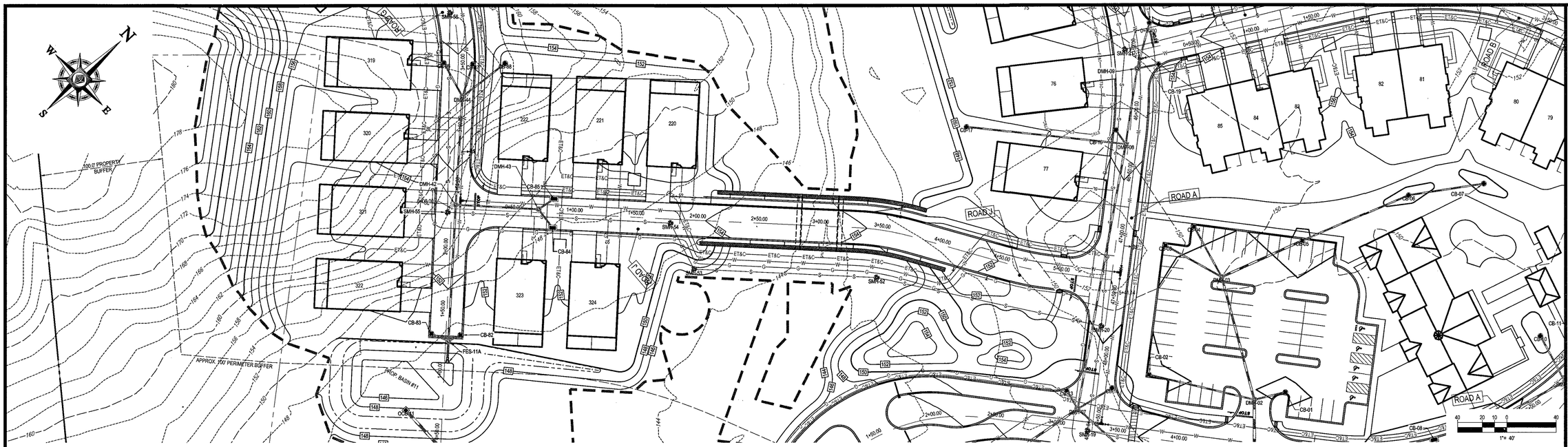
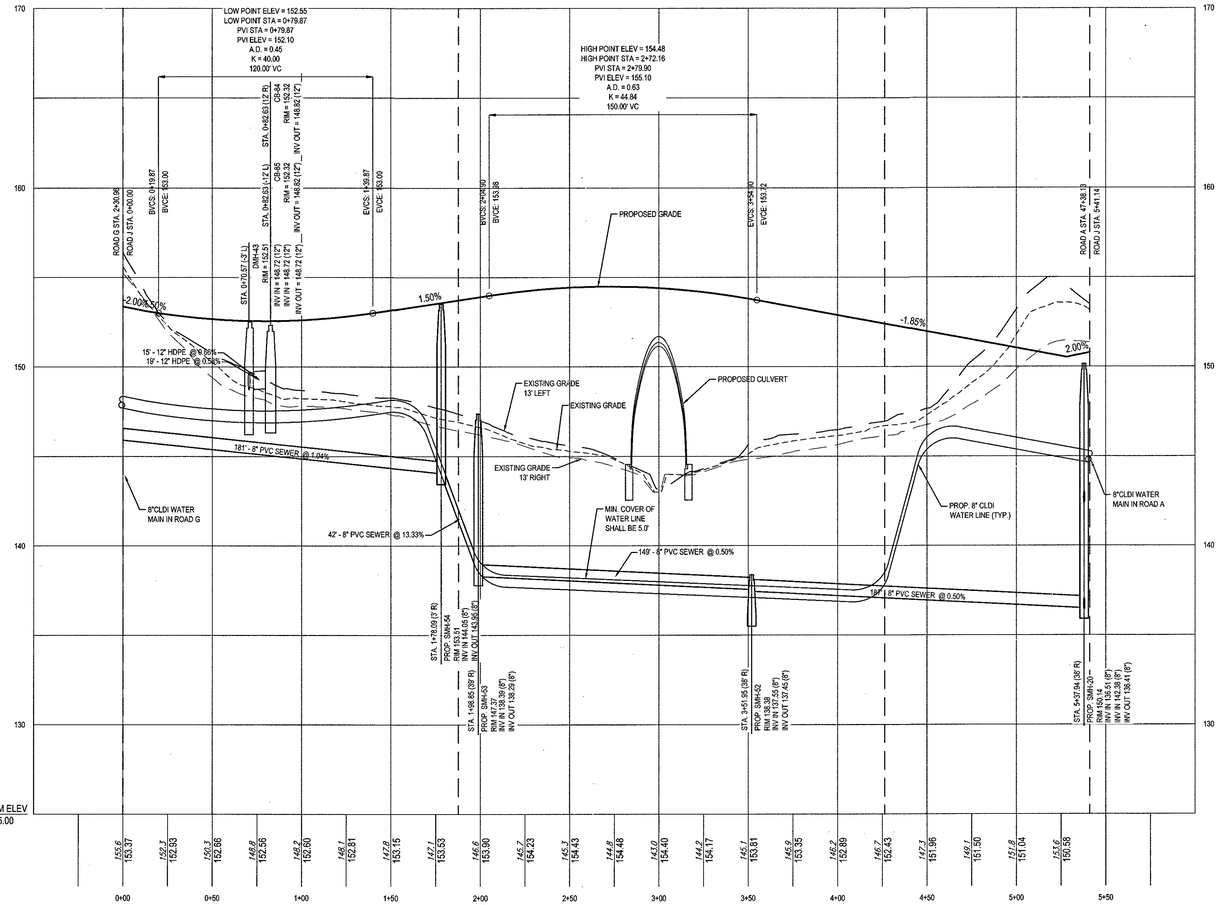
FLORIDA LICENSE No. 95202

SHEET TITLE:
ROAD I PLAN AND PROFILE B

SHEET NUMBER:
49
OF 85

REV 5 - 08/11/2017





ROAD J PROFILE

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

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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FLORIDA LICENSE NO. 68202

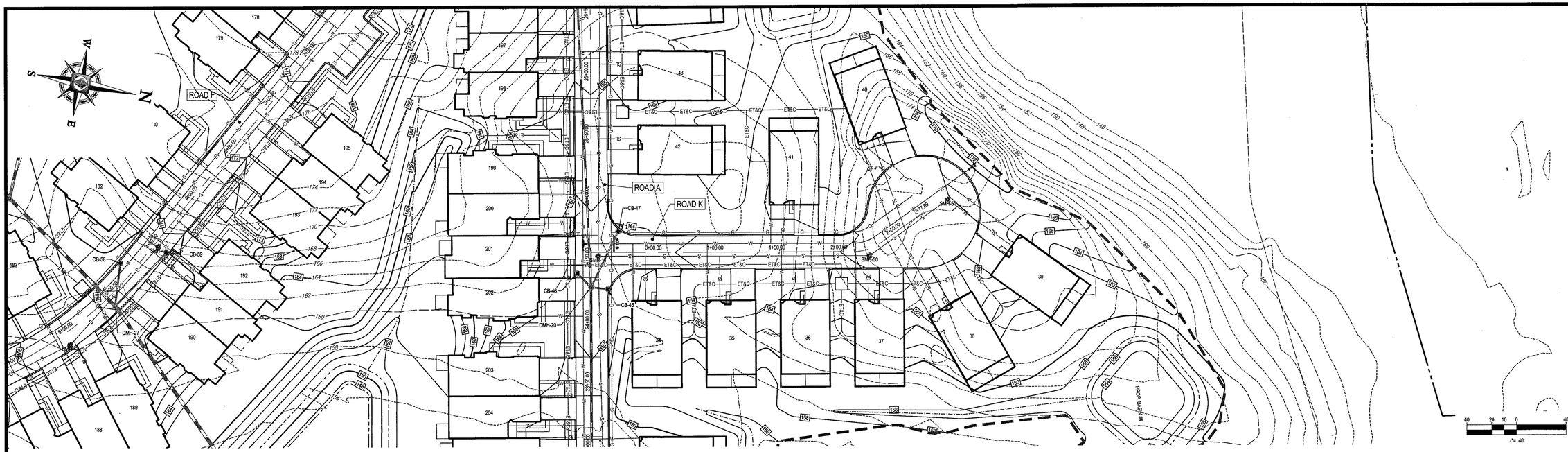
SHEET TITLE:

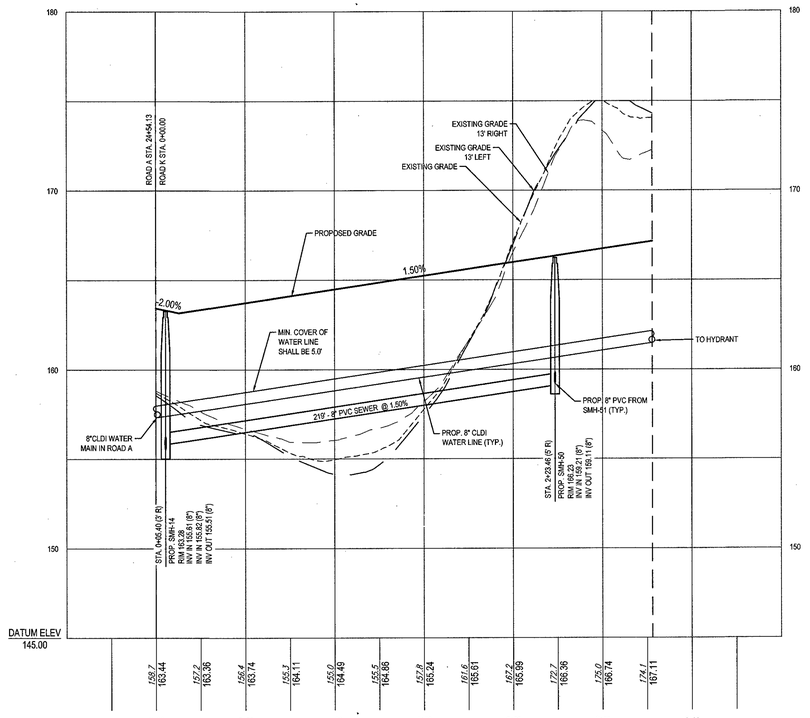
ROAD J PLAN AND PROFILE

SHEET NUMBER:

50
OF 85

REV 5 - 08/11/2017





ROAD K PROFILE

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

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Know what's below.
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3	05/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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FLORIDA LICENSE NO. 86202

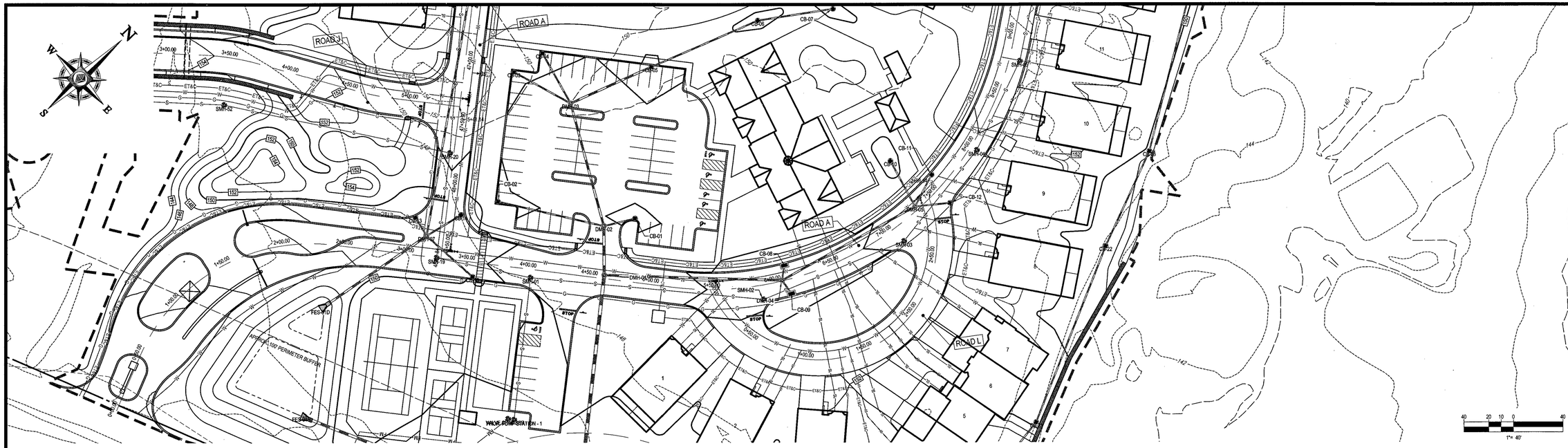
SHEET TITLE:

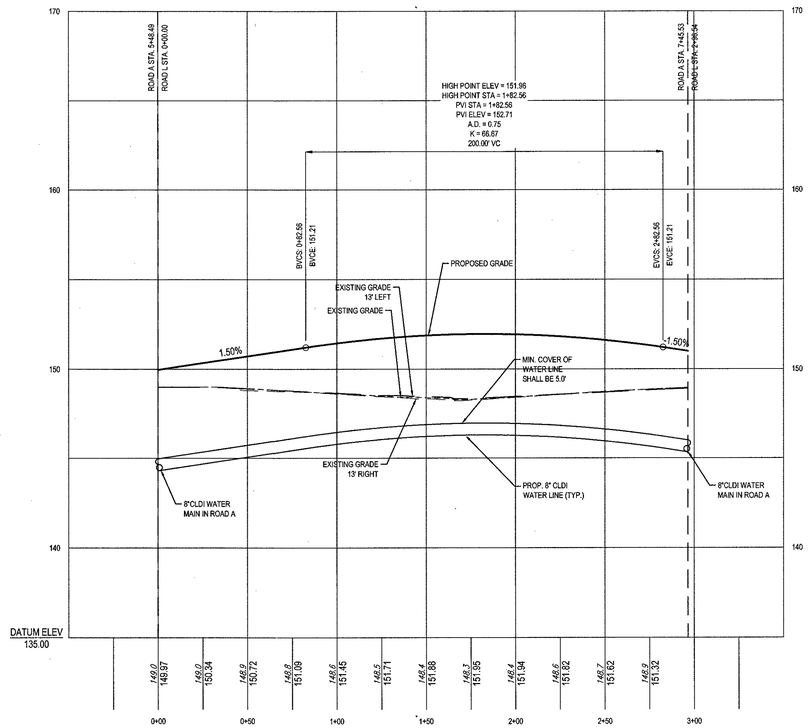
ROAD K PLAN AND PROFILE

SHEET NUMBER:

51
OF 85

REV 5 - 08/11/2017





ROAD L PROFILE

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

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◆ NEW YORK, NY
◆ NEW JERSEY

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◆ SOUTHEASTERN, PA
◆ CENTRAL PENNSYLVANIA
◆ BALTIMORE, MD
◆ SOUTHERN MARYLAND

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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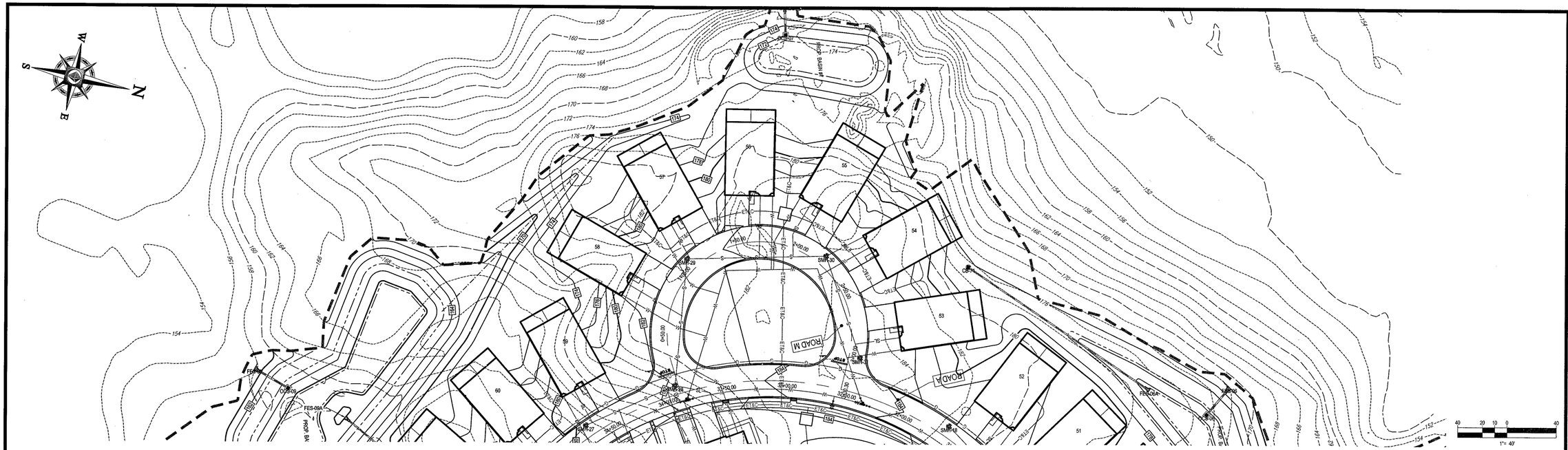
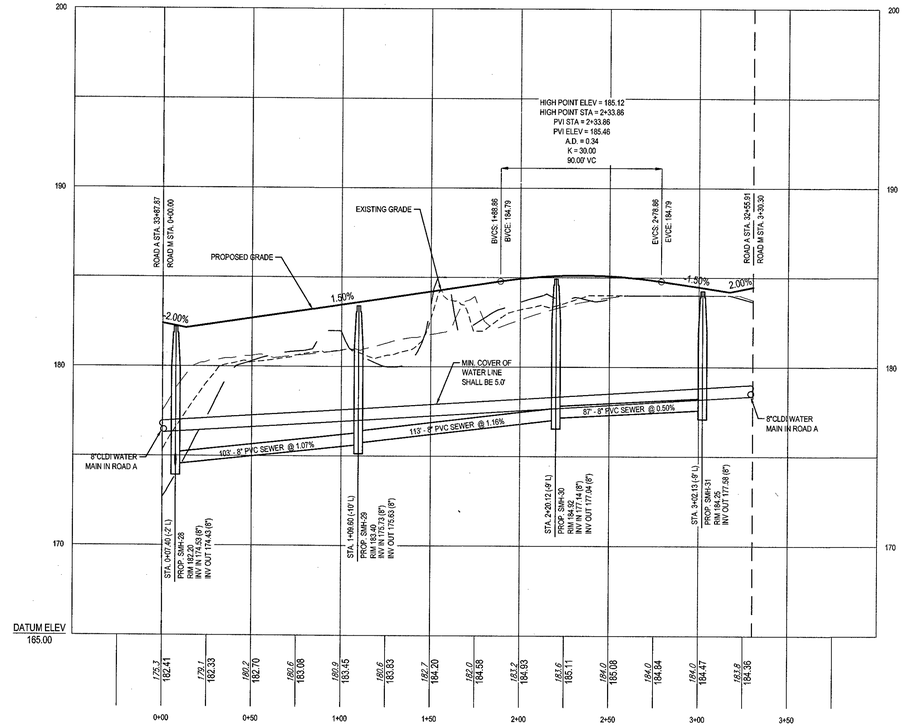
SHEET TITLE:
ROAD L PLAN AND PROFILE

SHEET NUMBER:
52
OF 85

REV 5 - 08/11/2017





ROAD M PROFILE

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

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REV.	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_PROFILES

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
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WILLIAM D. GOEBEL
PROFESSIONAL ENGINEER
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CONNECTICUT LICENSE NO. 27854
NEW HAMPSHIRE LICENSE NO. 17280
MAINE LICENSE NO. [illegible]
NEW YORK LICENSE NO. 121284-1
FLORIDA LICENSE NO. 86202

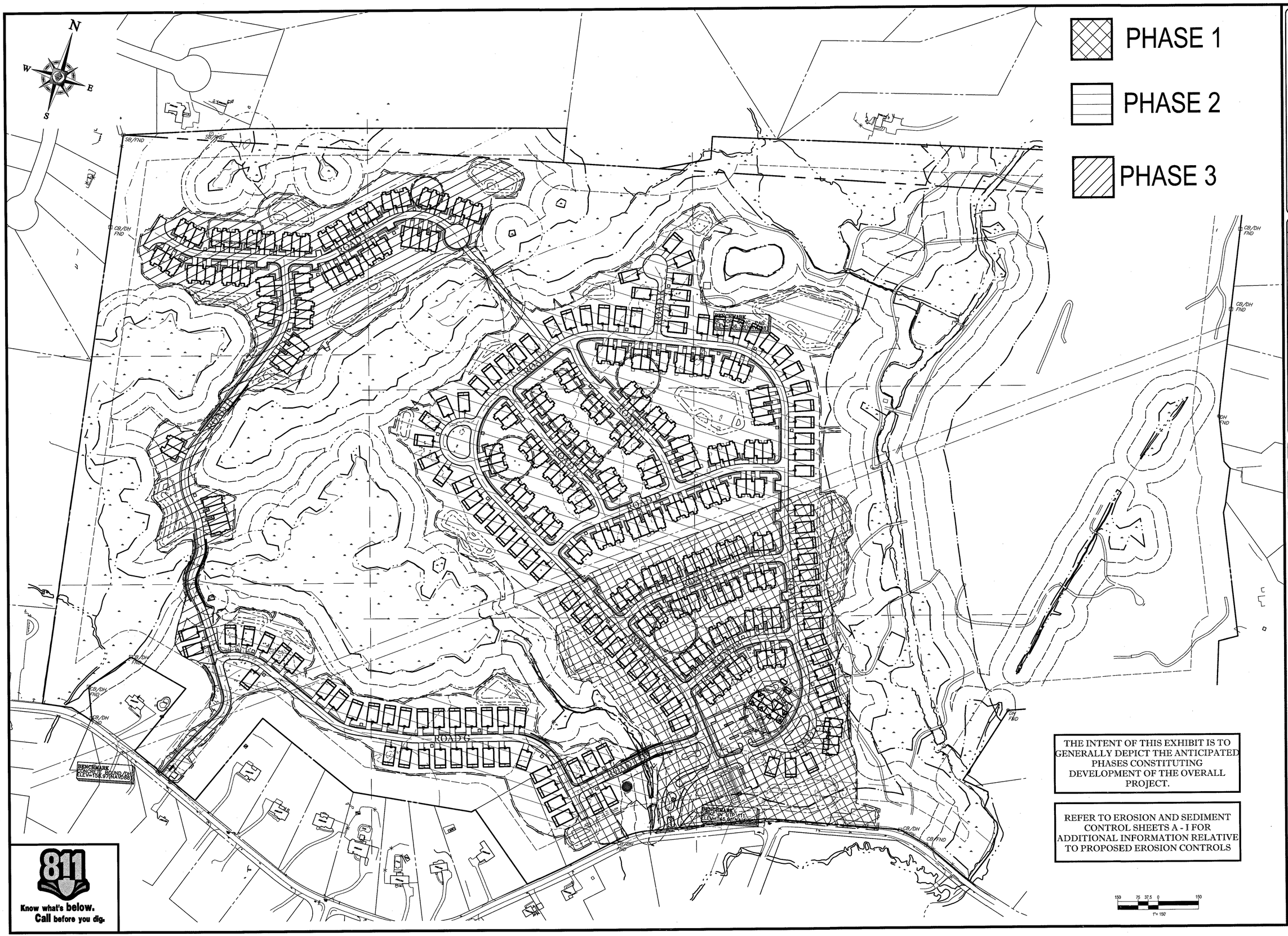
SHEET TITLE:

ROAD M PLAN AND PROFILE

SHEET NUMBER:

53
OF 85

REV 5 - 08/11/2017



811
Know what's below.
Call before you dig.

THE INTENT OF THIS EXHIBIT IS TO GENERALLY DEPICT THE ANTICIPATED PHASES CONSTITUTING DEVELOPMENT OF THE OVERALL PROJECT.

REFER TO EROSION AND SEDIMENT CONTROL SHEETS A - I FOR ADDITIONAL INFORMATION RELATIVE TO PROPOSED EROSION CONTROLS

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DEFINITIVE SET

PROJECT No.:	W161041
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DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_ERO_PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
OVERALL EROSION CONTROL KEY AND PHASING PLAN

SHEET NUMBER:
54
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

MATCH LINE - SHEETS A/B

MATCH LINE - SHEETS A/F

ROAD B

ROAD A

ROAD L

ORCHARD STREET

APPROX. LOCATION OF STRAW WATTLES AND SILT FENCE

PROP. INLET PROTECTION (TYP.)

STOCKPILE LOCATION IS APPROXIMATE AND MAY VARY DEPENDING UPON NATURE OF CONSTRUCTION ACTIVITIES. STOCKPILES SHALL BE KEPT OUTSIDE OF 100' WETLAND BUFFER AND 100' VERNAL POOL BUFFER.

STOCKPILE AREA (TYP.)

PROP. 12" MULCH SOCK / STRAW WATTLES (TYP.)

APPROX. 100' PERIMETER BUFFER

PROP. BASIN #1

PROP. CONSTRUCTION NOTICE SIGN

MAIN SITE DRIVE SITE DISTANCE (TYP.)

RIM=151.48
SPIKE IN CTP (TYP.)
ELEV=145.61(NAVD88)

MAP 6 LOT 6
N/F
ROBERT R. GRACI
&

5/LOT 17
N/F
OF MILLIS

CB/DH
FND

CB/FND

DH
FND

1" = 40'

811
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN A

SHEET NUMBER:
55
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

MATCH LINE - SHEETS B/C

MATCH LINE - SHEETS B/E

MATCH LINE - SHEETS A/B

PROP. BASIN #8

TEMPORARY SETTLING BASIN DURING PHASE 2 CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. BASIN #2

TEMPORARY SETTLING BASIN DURING PHASE 1 CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. LIMITS OF PHASE 1 AND PHASE 2

PROP. LIMIT OF PHASE 2

PROP. LIMIT OF PHASE 1

PROP. INLET PROTECTION (TYP.)

PROP. INLET-PROTECTION (TYP.)

PROP. STABILIZED CONSTRUCTION ENTRANCE/EXIT

PROP. 12" MULCH SOCK / STRAW WATTLES (TYP.)

APPROX. LOCATION OF STRAW WATTLES AND SILT FENCE

ROAD A

ROAD C

ROAD D

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX)

60.0' PIPE GAS EASEMENT

CORCORAN JENNISON COMPANY, INC

BB1-1 BB1-2 BB1-3 BB1-4 BB1-5

DD-1 DD-2 DD-3 DD-4 DD-5 DD-6 DD-7 DD-8

O-22 O-23 O-24 O-25 O-26 O-26A O-27 O-28 O-29 O-30 O-31 O-32 O-33 O-34 O-43 O-44 O-45 O-46 O-47 O-48 O-49 O-50 O-50A O-52 O-53 O-54

T-21 T-22 T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 T-31 T-32 T-33 T-34 T-35 T-36 T-38 T-39 T-40 T-41 T-42 T-43 T-44 T-45 T-46

N W E S

40 20 10 0 40
1"= 40'

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- WASHINGTON, MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
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2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN B

SHEET NUMBER:
56
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

HOLLISTON

MILLIS

APPROX. 100' PERIMETER BUFFER

ZONE AE (BFE 144)

TEMPORARY SETTLING BASIN DURING CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. 12" MULCH SOCK / STRAW WATTLES (TYP.)

PROP. BASIN #4

PROP. INLET PROTECTION (TYP.)

PROP. LIMIT OF PHASE 2

MATCH LINE - SHEETS C/D

TEMPORARY SETTLING BASIN DURING PHASE 2 CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. BASIN #3

PROP. INLET PROTECTION (TYP.)

BENCHMARK
C. CDR. CONC. HD
ELEV=156.38(NAVD88)

ROAD A

MATCH LINE - SHEETS B/C

811 Know what's below. Call before you dig.

1"= 40'

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BOSTON, MA
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NEW JERSEY
NEW YORK
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CENTRAL PENNSYLVANIA
CENTRAL VIRGINIA
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SOUTH FLORIDA
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN C

SHEET NUMBER:
57
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

HOLLISTON

MILLIS

STOCKPILE LOCATION IS APPROXIMATE AND MAY VARY DEPENDING UPON NATURE OF CONSTRUCTION ACTIVITIES. STOCKPILES SHALL BE KEPT OUTSIDE OF 100' WETLAND BUFFER AND 100' VERNAL POOL BUFFER.

APPROX. 100' PERIMETER BUFFER

TEMPORARY SETTLING BASIN DURING CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. INLET PROTECTION (TYP.)

PROP. BASIN #18

APPROX. LOCATION OF STRAW WATTLES AND SILT FENCE

STOCKPILE AREA (TYP.)

MAP 1 LOT 1

MATCH LINE - SHEETS D/I

ROAD I

PROP. INLET PROTECTION (TYP.)

PROP. STABILIZED CONSTRUCTION ENTRANCE/EXIT

PROP. LIMITS OF PHASE 2 AND PHASE 3

PROP. LIMIT OF PHASE 3

PROP. LIMIT OF PHASE 2

PROP. SILT FENCE (TYP.) (TO BE HAND PLACED)

EMERGENCY ACCESS ONLY

PROP. BASIN #5

PROP. 12" MULCH SOCK / STRAW WATTLES (TYP.)

TEMPORARY SETTLING BASIN DURING CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

MATCH LINE - SHEETS C/D

ROAD K

ROAD A

ROAD F

BASIN #15

MATCH LINE - SHEETS D/E

APPROX. LOCATION OF STRAW WATTLES AND SILT FENCE

STOCKPILE LOCATION IS APPROXIMATE AND MAY VARY DEPENDING UPON NATURE OF CONSTRUCTION ACTIVITIES. STOCKPILES SHALL BE KEPT OUTSIDE OF 100' WETLAND BUFFER AND 100' VERNAL POOL BUFFER.

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PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:

EROSION AND SEDIMENT CONTROL PLAN D

SHEET NUMBER:

58

OF 85

REV 5 - 08/11/2017

811
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Call before you dig.

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

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

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DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
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Fax: (508) 480-9080
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NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE No. 86202

SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN E

SHEET NUMBER:
59
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

N W E S

MATCH LINE - SHEETS E/F

MATCH LINE - SHEETS F/G

MATCH LINE - SHEETS A/F

TEMPORARY SETTLING BASIN DURING PHASE 1 CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

TEMPORARY SETTLING BASIN DURING PHASE 2 CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. SILT FENCE (TYP.) (TO BE HAND PLACED)

PROP. 12" MULCH SOCK / STRAW WATTLE (TYP.)

PROP. BASIN #10

PROP. BASIN #11

PROP. BASIN #12

STOCKPILE AREA (TYP.)

STOCKPILE LOCATION IS APPROXIMATE AND MAY VARY DEPENDING UPON NATURE OF CONSTRUCTION ACTIVITIES. STOCKPILES SHALL BE KEPT OUTSIDE OF 100' WETLAND BUFFER AND 100' VERNAL POOL BUFFER.

PROP. INLET PROTECTION (TYP.)

PROP. STABILIZED CONSTRUCTION ENTRANCE/EXIT

PROP. 18" COIR LOGS (TYP.)

PROP. SILT FENCE (TYP.) (TO BE HAND PLACED DOWN GRADIENT OF WETLAND REPLICATION AREA AND REMOVED BY HAND ONCE THE WETLAND REPLICATION AREA BECOMES STABLE AND VEGETATION IS ESTABLISHED)

PROP. WETLAND REPLICATION STOCKPILE

PROP. CONSTRUCTION NOTICE SIGN

TEMPORARY SETTLING BASIN DURING CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

ROAD G

ROAD I

APPROX. 100' PERIMETER BUFFER

100' WETLAND BUFFER

BLDG.

DWELLING

40 20 10 0 40
1"= 40'

811 Know what's below. Call before you dig.

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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN F

SHEET NUMBER:
60
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

N W E S

MATCH LINE - SHEETS G/H

MATCH LINE - SHEETS F/G

ROAD H

ROAD G

ORCHARD STREET

PROP. LIMIT OF PHASE 3

PROP. LIMITS OF PHASE 2 AND 3

PROP. LIMIT OF PHASE 2

PROP. BASIN #13

PROP. INLET PROTECTION (TYP.)

PROP. STABILIZED CONSTRUCTION ENTRANCE/EXIT

PROP. CONSTRUCTION NOTICE SIGN

PROP. 12" MULCH SOCK / STRAW WATTLES (TYP.)

APPROX. 100' PERIMETER BUFFER

APPROX. 50' PERIMETER BUFFER

ALGONQUIN GAS TRANSMISSION COMPANY EASEMENT (APPROX)

APPROX. 60' EXISTING GAS EASEMENT

MAP 1 LOT 6
N/F
KAMIL ALACHI
&
DANIELLE ALACHI

MAP 5 LOT 1
N/F
GREGORY M. DOHERTY JR.
&
CAROLYN DOHERTY

MAP 5 LOT 8
N/F
EDWARD M. SCHAFFER
&
VIRGINIA L. SCHAFFER

MAP 5 LOT 28
N/F
JAMES R. MURRAY
&
MINDY SHEFTS MURRAY

MAP 1 LOT 4

DWELLING

POOL

CB/DH END

BENCHMARK
CONCRETE BOUND/DH
ELEV=158.97(NAVD88)

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1"= 40'

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DEFINITIVE SET

PROJECT No.:	W161041
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DATE:	11/18/2016
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CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN G

SHEET NUMBER:
61
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

N W E S

MATCH LINE - SHEETS H/I

MAP 6 BLOCK 2 LOT 17A
N/F
WILLIAM C. HARRINGTON
&
DIANA R. HARRINGTON

PROP. LIMIT OF PHASE 3

MAP 1 LOT 2

APPROX. 100' PERIMETER BUFFER

PROP. 12" MULCH SOCK / STRAW WATTLES (TYP.)

PROP. INLET PROTECTION (TYP.)

TEMPORARY SETTLING BASIN DURING CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. BASIN #1

PROP. BASIN #2

PROP. SHEETING (TYP.)

PROP. LIMIT OF PHASE 3

ROAD H

MATCH LINE - SHEETS E/H

MATCH LINE - SHEETS G/H

HOLLISTON
MILLIS

811
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1" = 40'

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DEFINITIVE SET

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CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN H

SHEET NUMBER:
62
OF 85

REV 5 - 08/11/2017

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

SEE SHEET 54 FOR OVERALL SOIL EROSION CONTROL PHASING PLAN

N

W E

S

MAP 9 BLOCK 6 LOT 62
N/F
BENEDETTO A. MIELE, JR
&
PATRICIA A. MIELE

MAP 9 BLOCK 6 LOT 61
N/F
JEFFREY C. HASTIE
&
ANGELA C. HASTIE

MAP 6 BLOCK 2 LOT 90
N/F
DONALD LUNNY
&
KATHLEEN M. LUNNY

MAP 6 BLOCK 2 LOT 89
N/F
JOHN H. KOSIAN
&
NITA MCFADDEN

HOLLISTON
MILLIS

APPROX. 100' PERIMETER BUFFER

POOL

SB/FND

CB/DH FND

PROP. LIMIT OF PHASE 3

STOCKPILE LOCATION IS APPROXIMATE AND MAY VARY DEPENDING UPON NATURE OF CONSTRUCTION ACTIVITIES. STOCKPILES SHALL BE KEPT OUTSIDE OF 100' WETLAND BUFFER AND 100' VERNAL POOL BUFFER.

STOCKPILE AREA (TYP.)

PROP. 12" MULCH SOCK STRAW WATTLES (TYP.)

APPROXIMATE LOCATION OF STRAW WATTLES AND SILT FENCE

PROP. INLET PROTECTION (TYP.)

TEMPORARY SETTLING BASIN DURING PHASE 3 CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

TEMPORARY SETTLING BASIN DURING CONSTRUCTION. KEEP FLOOR 12" ABOVE FINAL GRADE

PROP. BASIN #17

PROP. BASIN #16

PROP. BASIN #15

PROP. BASIN #14

ROAD H

ROAD I

MATCH LINE - SHEETS H/I

MATCH LINE - SHEETS D/I

MAP 5 LOT 4

811
Know what's below.
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1" = 40'

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DEFINITIVE SET

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CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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MASSACHUSETTS

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SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN I

SHEET NUMBER:
63
OF 85

REV 5 - 08/11/2017

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
3. SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
4. INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS \AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF.
6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1).
7. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
8. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
9. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS.
10. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
    - 10.1. SIX INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
    - 10.2. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 500 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER1,000 SF).
    - 10.3. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUE-GRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS: SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.
    - 10.4. STRAW MULCH AT THE RATE OF 70-90 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
12. WETLANDS WILL BE PROTECTED WISTRAWBALES AND/OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
13. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
14. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.

MULCH

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

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

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

General Construction Sequencing

The following outline presents key construction activities in typical sequences which are generally anticipated within any given phase of the proposed construction. Some of these activities may ultimately overlap and/or change in sequence due to changing site conditions, weather and/or other unpredictable factors.

1. Perform survey layout for soil erosion and sediment control measures;
2. Selectively remove vegetation for erosion control installation installation;
3. Install erosion control and construction fencing;
4. Install stabilized construction entrance;
5. Utilize existing parking lot for demolition of existing structures;
6. Prepare construction trailer/staging location;
7. Prepare sales trailer location;
8. Commence construction of model units;
9. Construct entrance features/landscaping;
10. Clear and grub other areas where necessary;
11. Strip and stockpile topsoil;
12. Temporarily stabilize topsoil stockpiles (seed and silt fence around toe of slope);
13. Construct stormwater infiltration basins and outlet control structures. Basins to be excavated to 12" above final design grade if utilized as temporary sediment basins.
14. Temporary stabilize stormwater basins;
15. Conduct earthwork cuts and fills to bring roads to subgrade and lots to pad grade;
16. Construct retaining walls;
17. Temporarily stabilize padded lot areas;
18. Install sewer pump station(s);
19. Construct utilities (water, sewer, storm drain, etc.);
20. Construct roadway/parking/sidewalk pavement areas through binder course;
21. Commence housing construction (ongoing as road construction advances);
22. Provide surety bond to Town prior to first Certificate of Occupancy within each phase;
23. Construct unit-specific drainage components as housing construction progresses.
24. Finish grade lot areas;
25. Permanently stabilize lot areas with seed/landscaping;
26. Construct roadway/parking/sidewalk pavement areas through top course;
27. Clean out catch basins and stormwater basins;
28. Convert temporary sediment basins to permanent basin design elevations (after contributing lot areas are stabilized and catch basins cleaned);
29. Permanently stabilize stormwater basins.
30. Remove all temporary soil erosion and sediment control measures upon permanent site stabilization.

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EROSION CONTROL NOTES DURING WINTER CONSTRUCTION

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

Phasing and Sequencing

The following text coupled with the Phasing Plan describe the anticipated multi-phased approach to constructing *Regency at Glen Ellen.* The Phasing Plan anticipates development of the project in three phases. In addition to this Phasing and General Construction Sequence, Construction Sequencing for the Road J wetland crossing, the Emergency Access Road and Road H corridor have been prepared.

Phase 1

Phase 1 enables marketing and sale of approximately 78 dwellings:

- 4 townhouse model units
- 2 single-family model units
- 47 for-sale townhouse units
- 25 for-sale single family units

Depending upon on market conditions, Toll anticipates build out of these units within the first two years. Approximately 4,100 linear feet of supporting roadway, utility, and drainage improvements would be constructed as part of Phase 1. This includes installation of the Road J wetland crossing, sewer pump station PS1 and stormwater infiltration basins 1, 2 and 10. Construction of the model units will commence at the start of the phase. A surety bond will be posted prior to the issuance of the first Certificate of Occupancy in the phase. Binder course pavement for roadways will be installed prior to the first Certificate of Occupancy in each phase. Stormwater basins will be constructed and stabilized early in each phase to collect runoff from each basin's respective drainage area. Stormwater Basins will be constructed to 12" above bottom design elevation for utilization as temporary sediment basins. Lot areas will be temporarily and permanently stabilized as housing construction advances through the phase.

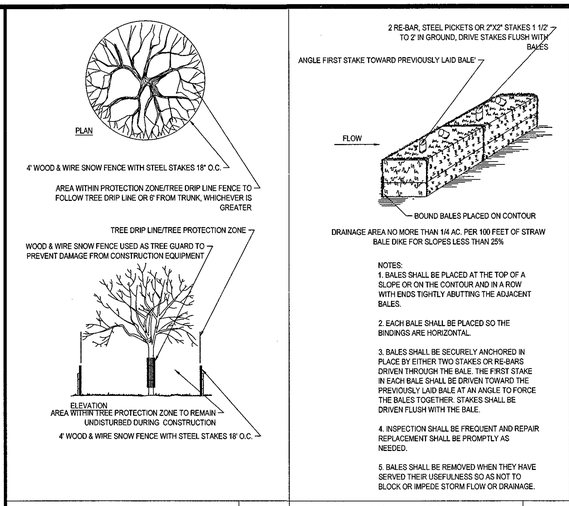
Phase 2

Phase 2 would yield approximately 175 additional dwelling units (95 townhouse units and 80 single units). Again, depending upon market conditions, Toll anticipates build out of Phase 2 over approximately four years. Accordingly, approximately 5350 additional linear feet of supporting roadway, utility, and drainage improvements would be constructed. Infrastructure improvements in this phase will include the emergency access between Phases 2/3 and stormwater infiltration basins 3 through 9 and 11 through 13. A surety bond will be posted prior to the issuance of the first Certificate of Occupancy in the phase. Binder course pavement for roadways will be installed prior to the first Certificate of Occupancy in each phase. Stormwater basins will be constructed and stabilized early in each phase to collect runoff from each basin's respective drainage area. Stormwater Basins will be constructed to 12" above bottom design elevation for utilization as temporary sediment basins. Lot areas will be temporarily and permanently stabilized as housing construction advances through the phase.

Phase 3

Phase 3 would yield approximately 68 additional dwelling units (66 townhouse units and 2 single units). Again depending upon market conditions, Toll anticipates build out of Phase 3 over approximately three years. Accordingly, approximately 2900 additional linear feet of supporting roadway, utility, and drainage improvements would be constructed. Infrastructure improvements will include sewer pump stations PS2 and PS3,the amphibian culverts under Road H and stormwater basins 14 through 19. A surety bond will be posted prior to the issuance of the first Certificate of Occupancy in the phase. Binder course pavement for roadways will be installed prior to the first Certificate of Occupancy in each phase. Stormwater basins will be constructed and stabilized early in each phase to collect runoff from each basin's respective drainage area. Stormwater Basins will be constructed to 12" above bottom design elevation for utilization as temporary sediment basins. Lot areas will be temporarily and permanently stabilized as housing construction advances through the phase.

1.

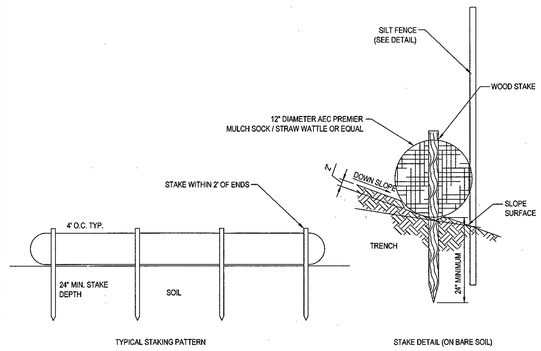


TREE PROTECTION DURING CONSTRUCTION — N.T.S.

DRAINAGE AREA NO MORE THAN 1/4 AC. PER 100 FEET OF STRAW BALE DIKE FOR SLOPES LESS THAN 25%

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

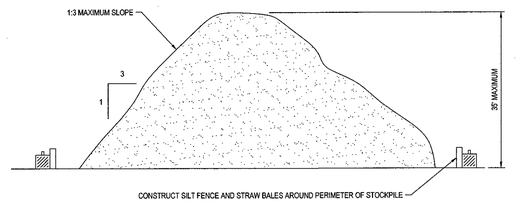
STRAW BALE DETAIL — N.T.S.



12" MULCH SOCK / STRAW WATTLE DETAIL — N.T.S.

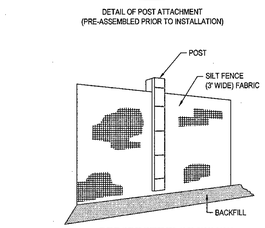
LAWNPRO GRASS MIX	
PROPERTIES	PERCENTAGE
PERENNIAL RYE	34.65%
CREEPING RED FESCUE	34.65%
KENTUCKY BLUE GRASS	30.70%

LAWNPRO GRASS MIX — N.T.S.



TEMPORARY STOCKPILE DETAIL — N.T.S.

INSTALLATION:
1. EXCAVATE A 6"x 6" TRENCH ALONG THE LINE OF EROSION CONTROL OF THE SITE.
2. UNROLL SILTATION FENCE AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH (NET SIDE AWAY FROM FLOW DIRECTION).
3. DRIVE THE POST INTO THE GROUND UNTIL THE NETTING IS LAYING ACROSS THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF THE FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING FABRIC FLAP ON UNDISTURBED GROUND AND PILING & TAMP- ING FILL AT THE BASE.



TOE-IN METHODS — PERSPECTIVE OF FENCE

TYP. SILTATION FENCE DETAIL — N.T.S.

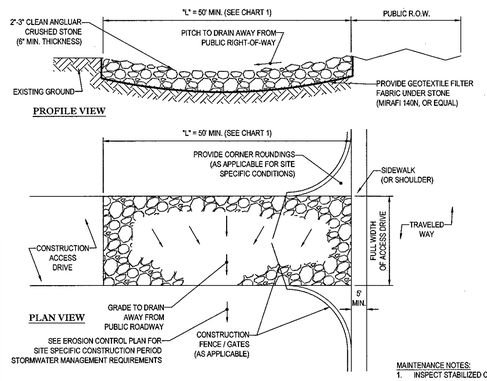


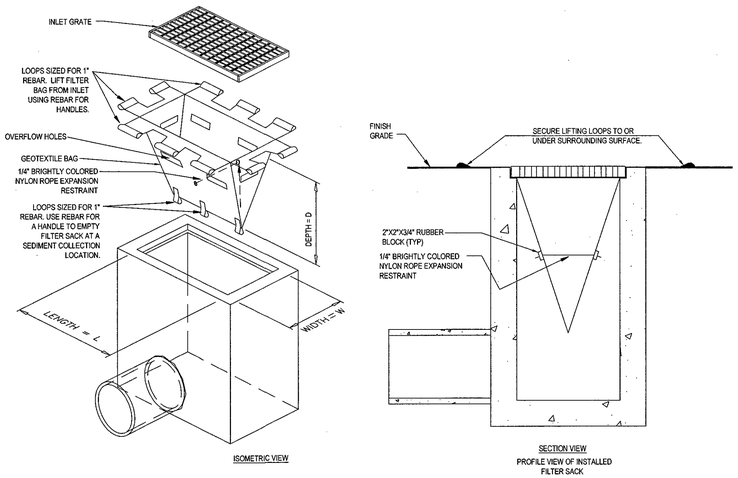
CHART 1

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

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

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

STABILIZED CONSTRUCTION EXIT — N.T.S.



LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

1. REMOVE TRAPPED SEDIMENT WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN.
2. GEOTEXTILE SHALL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
3. PLACE AN OIL ADSORBENT PAD OR PILLOW OVER INLET GRATE WHEN OIL SPILLS ARE A CONCERN.
4. INSPECT PER REGULATORY REQUIREMENTS.
5. THE WIDTH, "W", OF THE FILTER SACK SHALL MATCH THE INSIDE WIDTH OF THE GRATED INLET BOX.
6. THE DEPTH, "D", OF THE FILTER SACK SHALL BE BETWEEN 18 INCHES AND 36 INCHES
7. THE LENGTH, "L", OF THE FILTER SACK SHALL MATCH THE INSIDE LENGTH OF THE GRATED INLET BOX.

DO NOT USE IN PAVED AREAS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

TO BE USED IN EXISTING RIGHT OF WAY

FILTER SACKS (GRATED INLETS) — N.T.S.

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2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_ERO PHASE

PROJECT: SITE DEVELOPMENT PLANS FOR Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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MAINE LICENSE NO. 9400
NEW YORK LICENSE NO. 071284-1
FLORIDA LICENSE NO. 68202

SHEET TITLE: SOIL EROSION CONTROL NOTES & DETAILS SHEET

SHEET NUMBER: 64 OF 85

REV 5 - 08/11/2017

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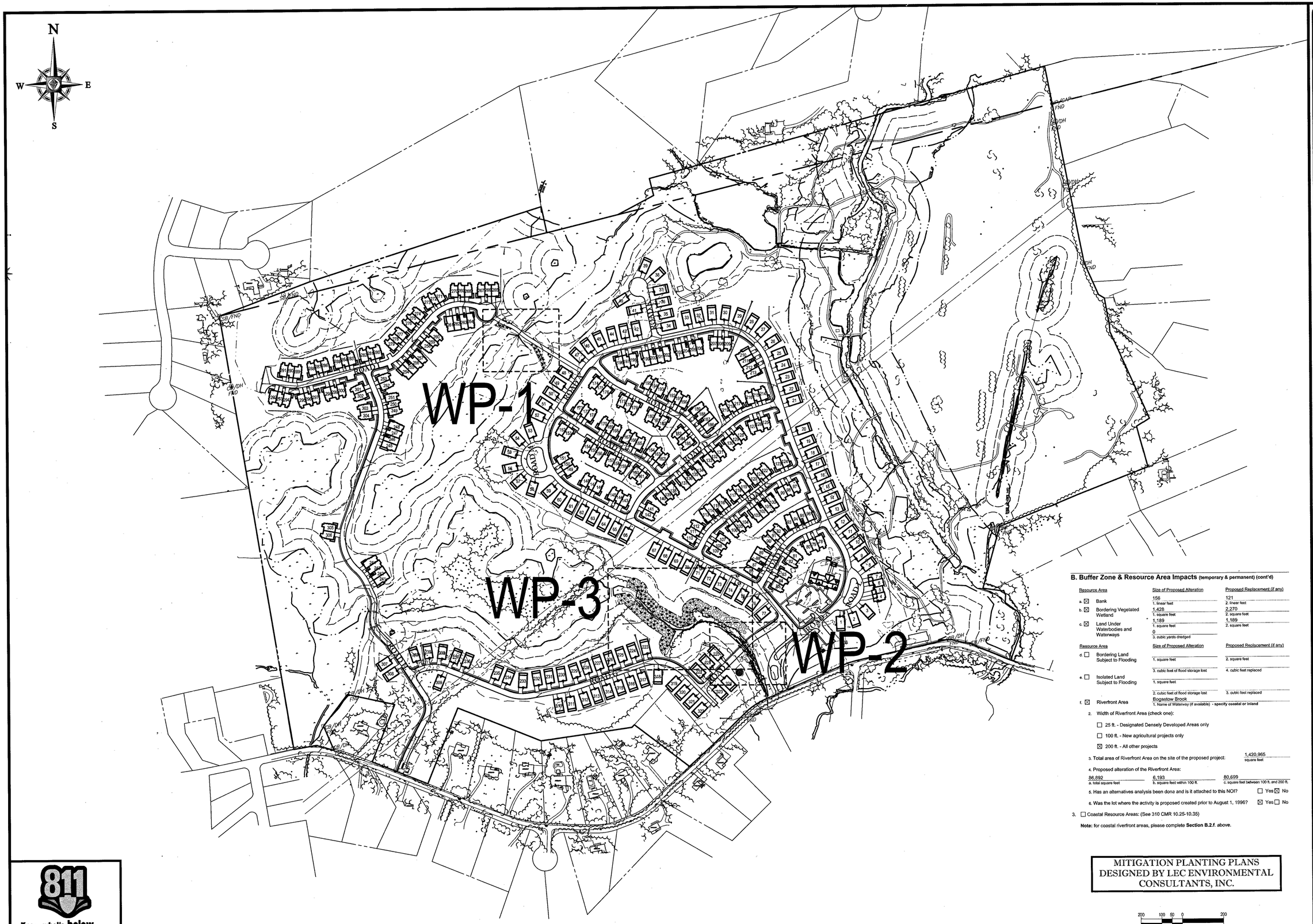
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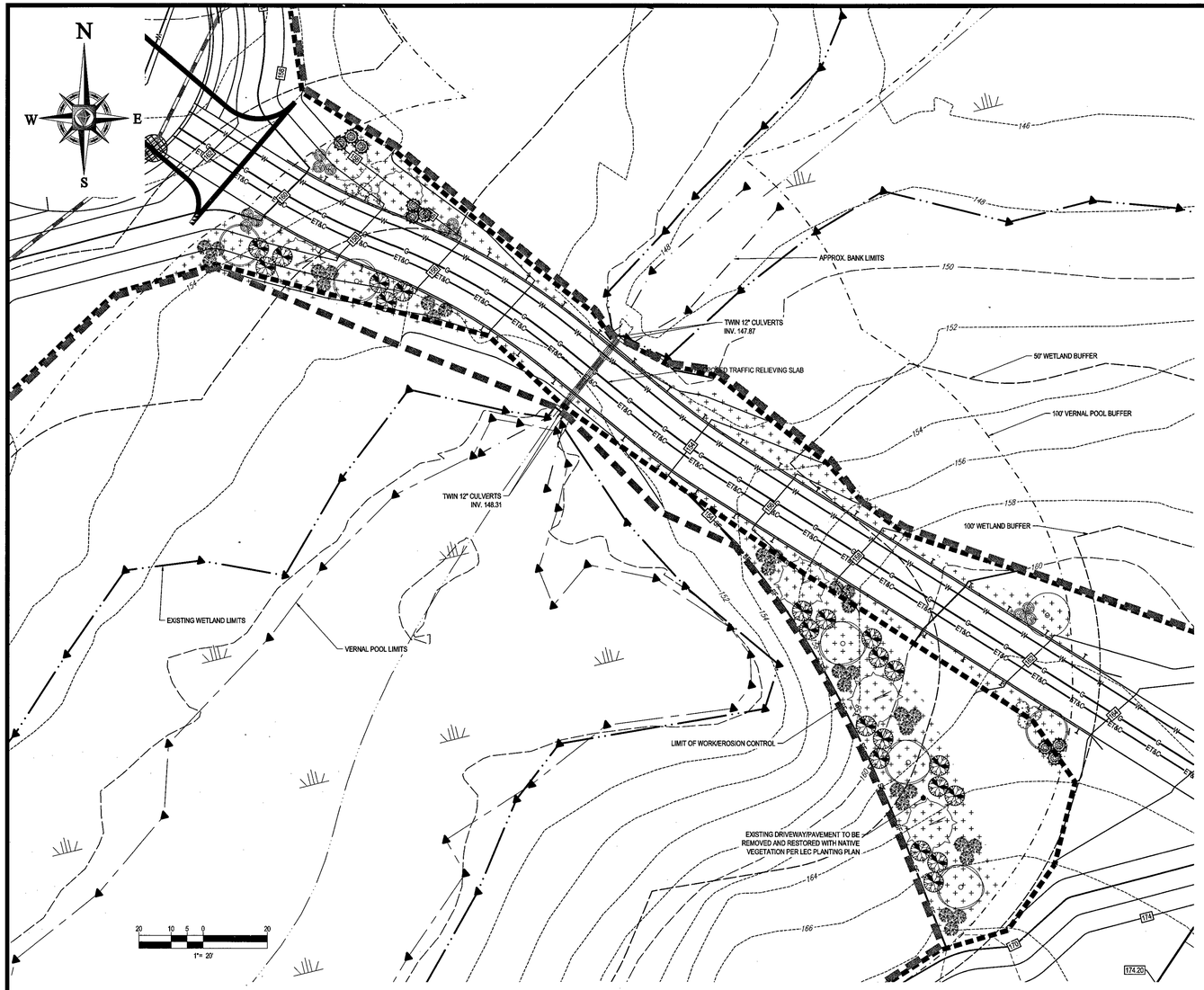

EXISTING WETLANDS

EXISTING VERNAL POOL

EXISTING BANK LIMITS

WETLAND BUFFER

100' VERNAL POOL BUFFER

PROPOSED LIMIT OF WORK

0-100' VERNAL POOL BUFFER RESTORATION (APPROX. 7,323 SF, SEE THIS SHEET FOR PLANTING MIX SPECIFICATIONS)

Northeast Upland Native/Naturalized Wildflower Mix or Equivalent
(1 pound will cover 1,000 sq. ft. @ 2,044 seeds per sq. ft.)

Grasses	
Festuca ovina	(Sheep Fescue)
Panicum virgatum	(Switchgrass)
Setaria italica	(Foxtail Millet)
Anthoxanthum odoratum	(Sweet Vernal Grass)
Lolium multiflorum	(Annual Ryegrass)
Elymus canadensis	(Wild Rye)
Wildflowers	
Achillea millefolium	(Common Yarrow)
Rudbeckia hirta	(Black Eyed Susan)
Chrysanthemum leucanthem.	(Ox-Eye Daisy)
Verbena hastata	(Blue Vervain)
Cichorium intybus	(Chicory)
Lotus corniculatus	(Birdsfoot Trefoil)
Hesperis matronalis	(Dame's Rocket)
Daucus carota	(Queen Anne's Lace)
Solidago canadensis	(Canada Goldenrod)
Euthamia graminifolia	(Grass Leaf Goldenrod)
Monarda fistulosa	(Wild Bergamot)
Aster novae-angliae	(New England Aster)

Buffer Zone Plant List

Common Name	Genus/Species	Size	Planting Specifications	No.
Trees				
tulip tree	*Liriodendron tulipifera*	4 - 6' min.	singles, 10 - 20 feet o.c.	1
black gum	*Nyssa sylvatica*	4 - 6' min.	singles, 10 - 20 feet o.c.	7
gray birch	*Betula populifolia*	4 - 6' min.	singles, 10 - 20 feet o.c.	2
eastern red cedar	*Juniperus virginiana*	4 - 6' min.	singles, 10 - 20 feet o.c.	1
eastern white pine	*Pinus strobus*	4 - 6' min.	singles, 10 - 20 feet o.c.	1
northern red oak	*Quercus rubra*	4 - 6' min.	singles, 10 - 20 feet o.c.	7
Shrubs				
bayberry	*Morella pensylvanica*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	6
sweet fern	*Comptonia peregrina*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	6
gray dogwood	*Cornus racemosa*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	30
meadowsweet	*Spiraea latifolia*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	9
witchhazel	*Hamamelis virginiana*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	21
beach plum	*Prunus serotina*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	9

Total: 100

BUFFER ZONE RESTORATION

- IF TOPSOIL IS ABSENT, APPROXIMATELY 4-6 INCHES OF TOPSOIL (LEAF COMPOST AND LOAM MIXTURE) SHALL BE ESTABLISHED WITHIN THE BUFFER ZONE PLANTING AREAS.
- BIODEGRADABLE NETTING IS RECOMMENDED ON SLOPES (E.G. 3:1 OR GREATER) WITHIN THE RESTORATION AREA WHERE APPLICABLE OR AS RECOMMENDED BY THE WETLAND SCIENTIST MONITOR.
- THE PROPOSED NATIVE SEEDMIX SHALL BE LIGHTLY RAKED INTO THE SURFACE AND APPLIED ACCORDING TO THE SUPPLIERS INSTRUCTIONS TO DISTURBED SOIL AREAS. REMAINING AREAS SHALL BE ALLOWED TO NATURALIZE.
- A ONE TIME APPLICATION OF COMPOST MULCH SHALL BE APPLIED TO THE DRIP LINE OF THE INSTALLED SHRUBS AND TREES.

NOTES

- ALL PLANTINGS SHALL BE NATIVE VARIETIES WITH NO LANDSCAPE CULTIVARS PROPOSED.
- SPECIFIC PLACEMENT OF SHRUBS AND TREES WITHIN THE PLANTING AREA APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD TO ACCOMODATE EXISTING CONDITIONS.
- THE PROPOSED MITIGATION WORK ACTIVITY SHALL BE MONITORED BY A WETLAND SCIENTIST.
- IF NECESSARY, ANY REQUIRED SUBSTITUTE NATIVE SHRUBS OR TREES SHALL BE REVIEWED BY THE WETLAND SCIENTIST PRIOR TO INSTALLATION. PROPOSED PLANTINGS SHALL BE INSPECTED ON-SITE BY THE WETLAND SCIENTIST PRIOR TO INSTALLATION WITHIN THE REPLICATION AREA.
- IMPLEMENTATION OF A WATERING SCHEDULE FOR THE PLANTINGS IS RECOMMENDED TO ENSURE ESTABLISHMENT.

PLANTING DETAIL
(NOT TO SCALE)

-EXCAVATE HOLE TO THE APPROXIMATE DEPTH FOR THE ROOT BALL.
-PREVENT BURYING OF ROOT FLARE (WHERE THE FIRST MAIN ROOTS ATTACH TO THE TRUNK).
-LOOSEN EXPOSED ROOTS AS NECESSARY.
-WATER THOROUGHLY UNTIL ROOTBALL AND SURROUNDING SOIL IS COMPLETELY SATURATED.

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MITIGATION PLANTING PLANS
DESIGNED BY LEC ENVIRONMENTAL
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_MPP

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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CONNECTICUT LICENSE No. 23054
NEW HAMPSHIRE LICENSE No. 10280
MAINE LICENSE No. 9490
NEW YORK LICENSE No. 121284-1
FLORIDA LICENSE NO. 86202

SHEET TITLE:
WP-1

SHEET NUMBER:
66
OF 85

REV 5 - 08/11/2017

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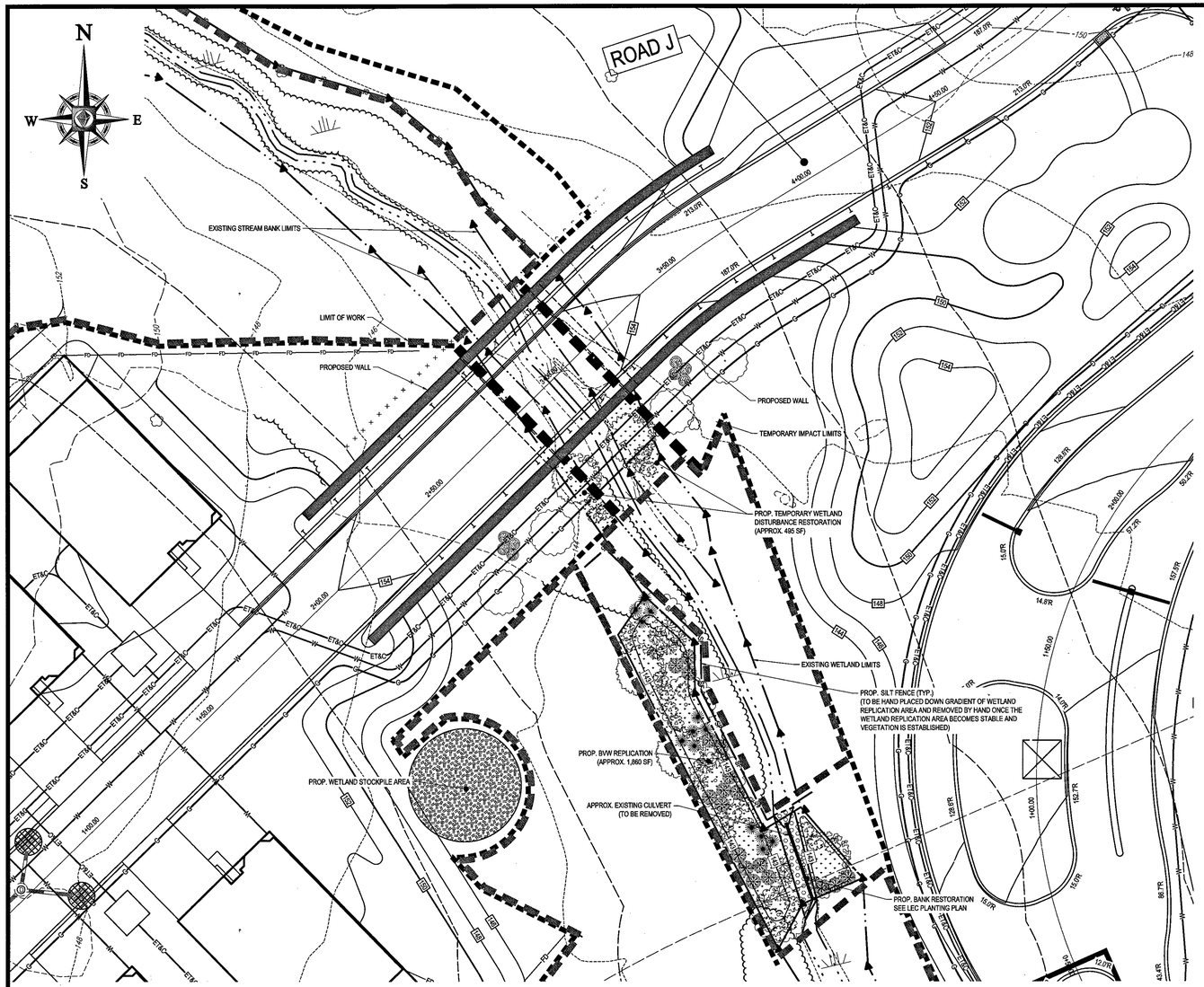


EXISTING WETLANDS

EXISTING VERNAL POOL

EXISTING BANK LIMITS

WETLAND BUFFER

100' VERNAL POOL BUFFER

PROPOSED LIMIT OF WORK

WETLAND BUFFER RESTORATION

PROPOSED WETLAND SEED MIX

PROPOSED BANK RESTORATION (APPROX. 32 LF)

Wetland Replication Area Plant List

Common Name	Genus/Species	Size	Planting Specifications	No.
Shrubs				
wild raisin	*Viburnum cassinoides*	2 - 3' min.	in clusters of 3 to 5, 4 - 6 feet o.c.	*12*
swamp azalea	*Rhododendron viscosum*	2 - 3' min.	in clusters of 3 to 5, 4 - 6 feet o.c.	*13*
northern arrowwood	*Viburnum dentatum*	2 - 3' min.	in clusters of 3 to 5, 4 - 6 feet o.c.	*18*
highbush blueberry	*Vaccinium corymbosum*	2 - 3' min.	in clusters of 3 to 5, 4 - 6 feet o.c.	*18*
Trees				
swamp tupelo	*Nyssa sylvatica*	4 - 6' min.	singles, 15 - 20 feet o.c.	*4*
American elm	*Ulmus americana*	4 - 6' min.	singles, 15 - 20 feet o.c.	*4*

Total: 69

Temporary Wetland Disturbance Restoration

Common Name	Genus/Species	Size	Planting Specifications	No.
Shrubs				
meadowsweet	*Spiraea latifolia*	2 - 3' min.	in clusters of 3 to 5, 4 - 6 feet o.c.	*8*
highbush blueberry	*Vaccinium corymbosum*	2 - 3' min.	in clusters of 3 to 5, 4 - 6 feet o.c.	*6*
Trees				
tulip tree	*Liriodendron tulipifera*	4 - 6' min.	singles, 15 - 20 feet o.c.	*4*
swamp tupelo	*Nyssa sylvatica*	4 - 6' min.	singles, 15 - 20 feet o.c.	*2*

Total: 20

Northeast Upland Native/Naturalized Wildflower Mix or Equivalent
(1 pound will cover 1,500 sq. ft. @ 250+ seeds per sq. ft.)

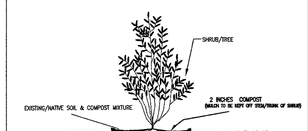
Grasses	
Festuca ovina	(Sheep Fescue)
Panicum virgatum	(Switchgrass)
Setaria italica	(Foxtail Millet)
Anthoxanthium odoratum	(Sweet Vernal Grass)
Lolium multiflorum	(Annual Ryegrass)
Elymus canadensis	(Wild Rye)
Wildflowers	
Achillea millefolium	(Common Yarrow)
Rudbeckia hirta	(Black Eyed Susan)
Chrysanthemum leucanthem.	(Ox-Eye Daisy)
Verbena hastata	(Blue Vervain)
Cichorium intybus	(Cichory)
Lotus corniculatus	(Birdsfoot Trefoil)
Hesperis matronalis	(Dame's Rocket)
Daucus carota	(Queen Anne's Lace)
Solidago canadensis	(Canada Goldenrod)
Euthamia graminifolia	(Grass Leaf Goldenrod)
Monarda fistulosa	(Wild Bergamot)
Aster novae-angliae	(New England Aster)

Northeast Wetland Diversity Mix
(1 pound will cover 21,750 sq. ft. @ 100+ seeds per sq. ft)

28.82%	*Scirpus atrovirens*	green bulrush
13.05%	*Juncus effusus*	soft rush
12.01%	Mimulus ringens	monkey flower
8.35%	Carex vulpinoidea	fox sedge
7.83%	Penthorum sedoides	ditch stone crop
6.68%	*Glyceria grandis*	reed meadow grass
5.22%	*Scirpus cyperinus*	wool grass
4.18%	Verbena hastata	blue vervain
2.09%	*Eupatorium perfolilatum*	boneset
1.57%	Leersia oryzoides	rice cut grass
1.48%	*Helenium autumnale*	common sneezeweed
1.36%	*Glyceria canadensis*	Canada mannagrass
0.89%	*Eupatorium maculatum*	Joe pye weed
0.73%	*Aster novae-angliae*	New England aster
0.52%	*Alisma plantago-aquatica*	water plantain
0.47%	*Euthamia graminifolia*	grassleaf goldenrod
0.47%	*Solidago rugosa*	wrinkled goldenrod
0.47%	*Cyperus strigosus*	straw stemmed aster
0.42%	*Aster puniceus*	purple stemmed aster
0.38%	*Cephalanthus occidentalis*	buttonbush
0.36%	*Scirpus tabernaemontanii*	soft stem bulrush
0.35%	*Aster umbellatus*	flat-top white aster
0.31%	*Carex comosa*	bearded sedge
0.26%	*Carex crinita*	fringed sedge
0.24%	*Solidago gigantea*	giant goldenrod
0.24%	*Bidens cernua*	deertongue
0.22%	*Panicum clandestinum*	water parsnip
0.21%	*Sium suave*	small fruited bulrush
0.18%	*Scirpus microcarpus*	nodding beggar-ticks
0.16%	*Cicuta maculata*	water hemlock
0.10%	*Elymus canadensis*	wild rye
0.08%	*Bidens frondosa*	devil's beggar-ticks
0.06%	*Angelica atropurpurea*	purple-stem angelica
0.05%	*Rumex verticillatus*	water dock
0.05%	*Carex lurida*	shallow sedge
0.04%	*Polygonum pensylvanicum*	Pennsylvania smartweed
0.04%	*Asclepias incarnata*	swamp milkweed
0.03%	*Elymus riparius*	riverbank wild rye
0.02%	*Carex lupulina*	hop sedge
0.01%	*Iris versicolor*	blue flag

PLANTING DETAIL

(NOT TO SCALE)



-EXCAVATE HOLE TO THE APPROXIMATE DEPTH FOR THE ROOT BALL.
-PREVENT BURYING OF ROOT FLARE (WHERE THE FIRST MAIN ROOTS ATTACH TO THE TRUNK).
-LOOSEN EXPOSED ROOTS AS NECESSARY.
-WATER THOROUGHLY UNTIL ROOTBALL AND SURROUNDING SOIL IS COMPLETELY SATURATED.

MITIGATION PLANTING PLANS DESIGNED BY LEC ENVIRONMENTAL CONSULTANTS, INC.

BUFFER ZONE RESTORATION

- IF TOPSOIL IS ABSENT, APPROXIMATELY 4-6 INCHES OF TOPSOIL (LEAF COMPOST AND LOAM MIXTURE) SHALL BE ESTABLISHED WITHIN THE BUFFER ZONE PLANTING AREAS.
- BIODEGRADABLE NETTING IS RECOMMENDED ON SLOPES (E.G. 3:1 OR GREATER) WITHIN THE RESTORATION AREA WHERE APPLICABLE OR AS RECOMMENDED BY THE WETLAND SCIENTIST MONITOR.
- THE PROPOSED NATIVE SEEDMIX SHALL BE LIGHTLY RAKED INTO THE SURFACE AND APPLIED ACCORDING TO THE SUPPLIERS INSTRUCTIONS.
- A ONE TIME APPLICATION OF COMPOST MULCH SHALL BE APPLIED TO THE DRIP LINE OF THE INSTALLED SHRUBS AND TREES.

NOTES

- ALL PLANTINGS SHALL BE NATIVE VARIETIES WITH NO LANDSCAPE CULTIVARS PROPOSED.
- SPECIFIC PLACEMENT OF SHRUBS AND TREES WITHIN THE PLANTING AREA APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD.
- THE PROPOSED MITIGATION WORK ACTIVITY SHALL BE MONITORED BY A WETLAND SCIENTIST.
- IF NECESSARY, ANY REQUIRED SUBSTITUTE NATIVE SHRUBS OR TREES SHALL BE REVIEWED BY THE WETLAND SCIENTIST PRIOR TO INSTALLATION. PROPOSED PLANTINGS SHALL BE INSPECTED ON-SITE BY THE WETLAND SCIENTIST PRIOR TO INSTALLATION WITHIN THE REPLICATION AREA.
- IMPLEMENTATION OF A WATERING SCHEDULE FOR THE PLANTINGS IS RECOMMENDED TO ENSURE ESTABLISHMENT.

WETLAND REPLICATION AND RESTORATION

- THE LIMITS OF THE WETLAND REPLICATION AREA SHALL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION AND CERTIFIED TO BE ACCURATELY LOCATED BY A P.L.S.
- MECHANICAL EQUIPMENT WILL BE USED TO EXCAVATE TO A SUB-GRADE ELEVATION APPROXIMATELY 12 INCHES BELOW THE PROPOSED FINAL ELEVATIONS. FINAL ELEVATIONS SHALL MIMIC EXISTING GRADES WITHIN THE ADJACENT WETLAND.
- APPROXIMATELY 12 INCHES OF ORGANIC TOP SOIL SHALL BE ESTABLISHED IN THE WETLAND REPLICATION AREA.
- THE PROPOSED SOIL SHALL BE COMPRISED OF CLEAN LEAF COMPOST AND LOAM MIXTURE, AND SHALL HAVE APPROXIMATELY 20% ORGANIC MATTER CONTENT. THE SOIL SHALL BE INSPECTED BY THE WETLAND SCIENTIST BEFORE PLACEMENT IN THE REPLICATION AREA.
- PIT AND MOUND MICRO-TOPOGRAPHY SHALL BE ESTABLISHED IN THE WETLAND REPLICATION AREA UNDER THE OVERSIGHT OF THE WETLAND SCIENTIST.
- THE NATIVE SEED MIX USED SHALL BE APPROVED BY THE MONITORING WETLAND SCIENTIST PRIOR TO SPREADING THE MIX.
- THE WETLAND REPLICATION AREA WILL BE MONITORED DURING AND FOLLOWING CONSTRUCTION, INCLUDING AT THE END OF THE FIRST AND SECOND GROWING SEASONS BY A QUALIFIED WETLAND SCIENTIST. MONITORING REPORTS DESCRIBING THE RELATIVE HEALTH OF THE PLANTINGS WILL BE SUBMITTED TO THE CONSERVATION COMMISSION WITH PHOTOGRAPHIC DOCUMENTATION AND RECOMMENDATIONS FOR SUPPLEMENTAL PLANTINGS, IF NECESSARY. THE MONITORING WILL INCLUDE AN ASSESSMENT OF THE DENSITY OF THE VEGETATION TO ENSURE 75% COVERAGE BY WETLAND INDICATOR PLANTS WITHIN TWO GROWING SEASONS. IT IS ANTICIPATED THAT OPPORTUNISTIC INVASIVE WETLAND PLANTS MAY ENTER AND COLONIZE THE PLANTING AREA; HOWEVER, EFFORTS WILL BE MADE TO DISCOURAGE COLONIZATION BY EXOTIC INVASIVES TO THE EXTENT PRACTICABLE.
- WETLAND RESTORATION WITHIN TEMPORARY DISTURBED STREAM CHANNEL WILL PROCEED IN ACCORDANCE WITH THE NOTES ABOVE EXCEPT FOR IMPORTATION OF SOIL WHICH WILL ONLY OCCUR IF NECESSARY.

BANK/STREAM RESTORATION

- SHOULD THE STREAM BE FLOWING DURING STREAM WORK ACTIVITY, A SMALL TEMPORARY COFFERDAM (E.G. SANDBAGS, SHEET METAL ETC.) SHALL BE INSTALLED ACROSS THE STREAMBED IMMEDIATELY UPGRADIENT OF THE PROPOSED WORK ACTIVITY. CONTAINED WATER WILL BE PUMPED DOWNGRADIENT OF THE WORK ACTIVITY LIMITS INTO THE STREAM.
- EFFORT SHALL BE MADE TO SCHEDULE WORK ON THE STREAM DURING PERIODS OF LOW WATER, AND WHEN PREDICTED WEATHER CONDITIONS ARE ABSENT OF A SUBSTANTIAL FORECASTED RAIN EVENT DURING PLANNED WORK ACTIVITY.
- EROSION CONTROLS WITHIN THE STREAM SHALL BE IMPLEMENTED DURING CONSTRUCTION, INCLUDING STAKED HAY-BALES AND SILT-FENCE INSTALLED ACROSS THE STREAMBED IMMEDIATELY DOWNGRADIENT OF THE PROPOSED WORK. ANY NECESSARY DEWATERING WILL BE CARRIED OUT USING CONSTRUCTION BEST MANAGEMENT PRACTICES.
- SIX INCH BIODEGRADABLE COIR FIBER LOGS SHALL BE USED TO RESTORE AND/OR STABILIZE THE STREAM BANKS UNDER THE SUPERVISION OF THE MONITORING WETLAND SCIENTIST. THE FIBER LOGS SHALL BE INSTALLED/EMBEDDED DIRECTLY ON THE FACE OF THE BANK AND ANCHORED (E.G. DUCKBILL, EARTH ANCHORS OR WOODEN STAKES). APPROPRIATE BIODEGRADABLE EROSION CONTROL NETTING (E.G. JUTE) SHALL BE INSTALLED AND STAKED ACCORDING TO THE MANUFACTURER OVER ANY DISTURBED AREAS IMMEDIATELY ADJACENT TO THE STREAM CHANNEL SUBJECT TO FLOW OR EROSION, OR AS RECOMMENDED BY THE WETLAND SCIENTIST MONITOR.
- THE BOTTOM SUBSTRATE WITHIN THE RESTORED CHANNEL SHALL BE SIMILAR TO THE COMPOSITION OF THE SUBSTRATE IN THE ADJACENT EXISTING STREAM CHANNEL AND WILL BE DESIGNED TO RESIST DISPLACEMENT. THE PROPOSED STREAM CHANNEL WIDTH WILL BE MAINTAINED. EFFORT SHALL BE MADE STOCKPILE AND RE-USE EXISTING STREAM SUBSTRATE WHEN APPLICABLE.

811 Know what's below. Call before you dig.

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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_MPP

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
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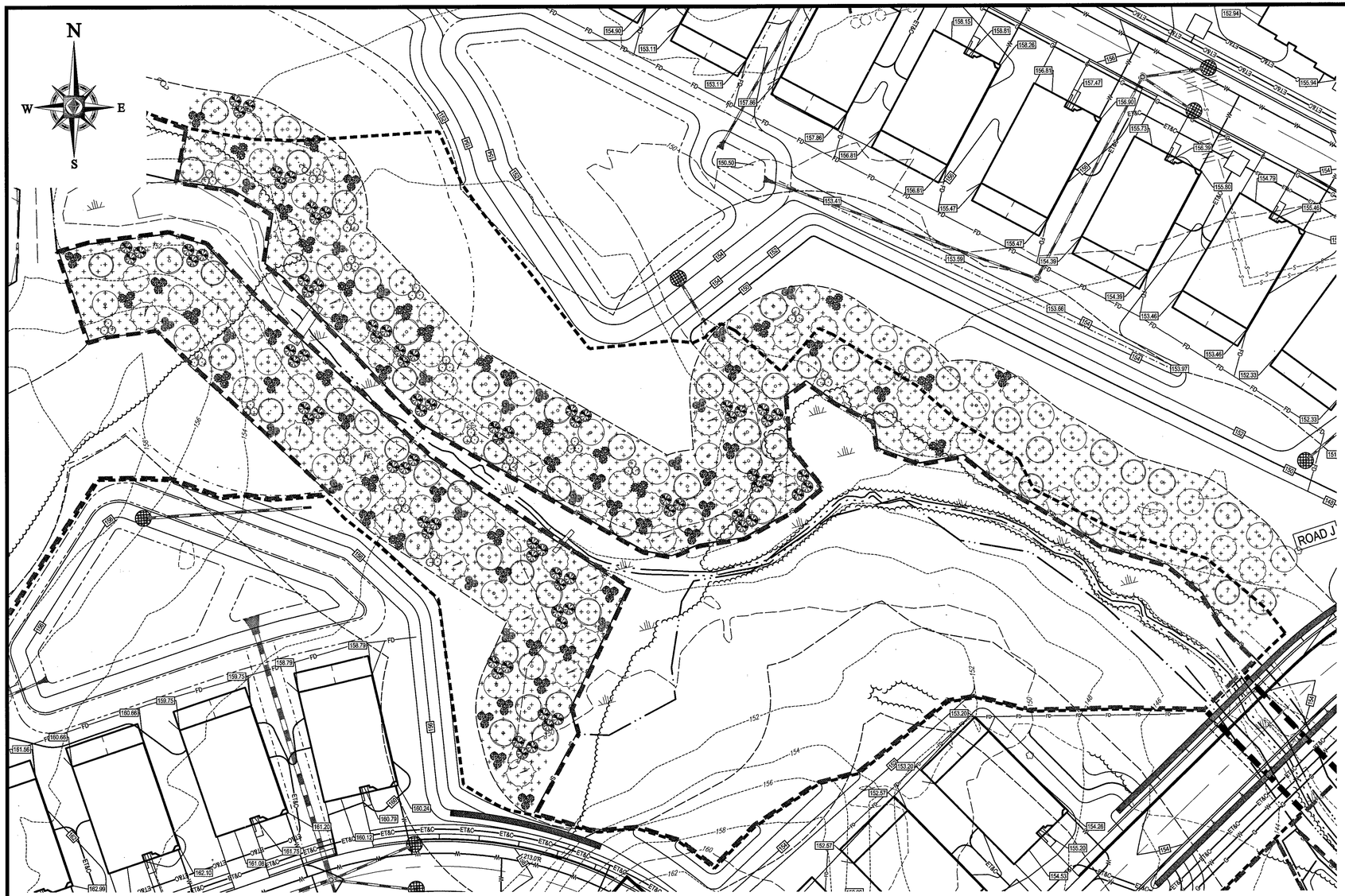
MAINE LICENSE NO. 5080
NEW YORK LICENSE NO. 121284-1
FLORIDA LICENSE NO. 66202

SHEET TITLE:
WP-2

SHEET NUMBER:
67
OF 85

REV 5 - 08/11/2017



EXISTING WETLANDS

EXISTING VERNAL POOL

EXISTING BANK LIMITS

WETLAND BUFFER

100' VERNAL POOL BUFFER

PROPOSED LIMIT OF WORK

0'-50' WETLAND BUFFER RESTORATION (APPROX. 60,000 SF, SEE THIS SHEET FOR PLANTING SPECIFICATIONS)

Northeast Upland Native/Naturalized Wildflower Mix or Equivalent
(1 pound will cover 1,900 sq. ft. @ 250+ seeds per sq. ft.)

Grasses

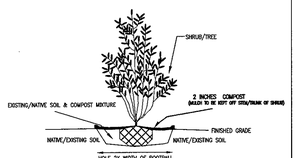
Festuca ovina	(Sheep Fescue)
Panicum virgatum	(Switchgrass)
Setaria italica	(Foxtail Millet)
Anthoxanthum odoratum	(Sweet Vernal Grass)
Lolium multiflorum	(Annual Ryegrass)
Elymus canadensis	(Wild Rye)

Wildflowers

Achillea millefolium	(Common Yarrow)
Rudbeckia hirta	(Black Eyed Susan)
Chrysanthemum leucanthem.	(Ox-Eye Daisy)
Verbena hastata	(Blue Vervain)
Cichorium intybus	(Cichory)
Lotus corniculatus	(Birdsfoot Trefoil)
Hesperis matronalis	(Dame's Rocket)
Daucus carota	(Queen Anne's Lace)
Solidago canadensis	(Canada Goldenrod)
Euthamia graminifolia	(Grass Leaf Goldenrod)
Monarda fistulosa	(Wild Bergamot)
Aster novae-angliae	(New England Aster)

PLANTING DETAIL

(NOT TO SCALE)



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-PREVENT BURYING OF ROOT FLARE (WHERE THE FIRST MAIN ROOTS ATTACH TO THE TRUNK).
-LOOSEN EXPOSED ROOTS AS NECESSARY.
-WATER THOROUGHLY UNTIL ROOTBALL AND SURROUNDING SOIL IS COMPLETELY SATURATED.

BUFFER ZONE RESTORATION

- IF TOPSOIL IS ABSENT, APPROXIMATELY 4-6 INCHES OF TOPSOIL (LEAF COMPOST AND LOAM MIXTURE) SHALL BE ESTABLISHED WITHIN THE BUFFER ZONE PLANTING AREAS.
- BIODEGRADABLE NETTING IS RECOMMENDED ON SLOPES (E.G. 3:1 OR GREATER) WITHIN THE RESTORATION AREA WHERE APPLICABLE OR AS RECOMMENDED BY THE WETLAND SCIENTIST MONITOR.
- THE PROPOSED NATIVE SEEDMIX SHALL BE LIGHTLY RAKED INTO THE SURFACE AND APPLIED ACCORDING TO THE SUPPLIERS INSTRUCTIONS TO DISTURBED SOIL AREAS. REMAINING AREAS SHALL BE ALLOWED TO NATURALIZE.
- A ONE TIME APPLICATION OF COMPOST MULCH SHALL BE APPLIED TO THE DRIP LINE OF THE INSTALLED SHRUBS AND TREES.

NOTES

- ALL PLANTINGS SHALL BE NATIVE VARIETIES WITH NO LANDSCAPE CULTIVARS PROPOSED.
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- IMPLEMENTATION OF A WATERING SCHEDULE FOR THE PLANTINGS IS RECOMMENDED TO ENSURE ESTABLISHMENT.

Buffer Zone Plant List

Common Name	Genus/Species	Size	Planting Specifications	No.
Trees				
tulip tree	*Liriodendron tulipifera*	4 - 6' min.	singles, 10 - 20 feet o.c.	22
black gum	*Nyssa sylvatica*	4 - 6' min.	singles, 10 - 20 feet o.c.	40
gray birch	*Betula populifolia*	4 - 6' min.	singles, 10 - 20 feet o.c.	22
eastern red cedar	*Juniperus virginiana*	4 - 6' min.	singles, 10 - 20 feet o.c.	24
eastern white pine	*Pinus strobus*	4 - 6' min.	singles, 10 - 20 feet o.c.	26
northern red oak	*Quercus rubra*	4 - 6' min.	singles, 10 - 20 feet o.c.	28
Shrubs				
bayberry	*Morella pensylvanica*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	72
sweet fern	*Comptonia peregrina*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	75
gray dogwood	*Cornus racemosa*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	114
meadowsweet	*Spiraea latifolia*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	75
witchhazel	*Hamamelis virginiana*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	105
beach plum	*Prunus serotina*	2 - 3' min.	clusters 3-5, 4 - 6 feet o.c.	78
			Total:	681

811 Know what's below. Call before you dig.

MITIGATION PLANTING PLANS DESIGNED BY LEC ENVIRONMENTAL CONSULTANTS, INC.

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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_MPP

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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FLORIDA LICENSE No. 66202

SHEET TITLE:

WP-3

SHEET NUMBER:

68
OF 85

REV 5 - 08/11/2017

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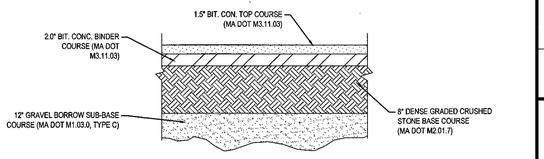
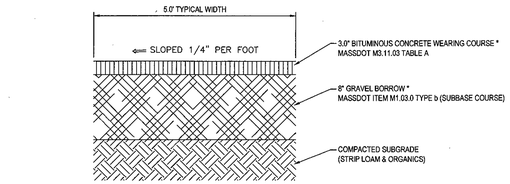
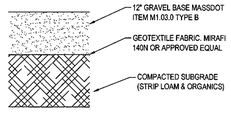


NOTES:
1. PAVEMENT BASE AND SUBBASE COURSES TO CONFORM TO ALL MASSDOT HIGHWAY DIVISION SPECIFICATIONS.
2. IF SUBGRADES ARE WET, AN ADDITIONAL 6"+ LAYER OF ¾" CRUSHED STONE MAY BE REQUIRED TO PROVIDE STABILITY FOR EQUIPMENT.
3. GC TO REFER TO GEOTECHNICAL REPORT PREPARED BY UTC OF MASSACHUSETTS, INC. DATED 05/26/16 FOR PAVEMENT SPECIFICATIONS.

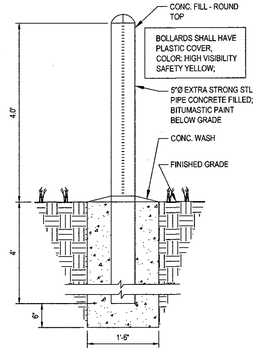
TYPICAL ASPHALT PAVEMENT SECTION — N.T.S.



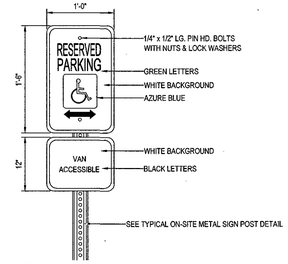
BITUMINOUS CONCRETE SIDEWALK SECTION — N.T.S.



PUMP STATION ACCESS DRIVE DETAIL — N.T.S.



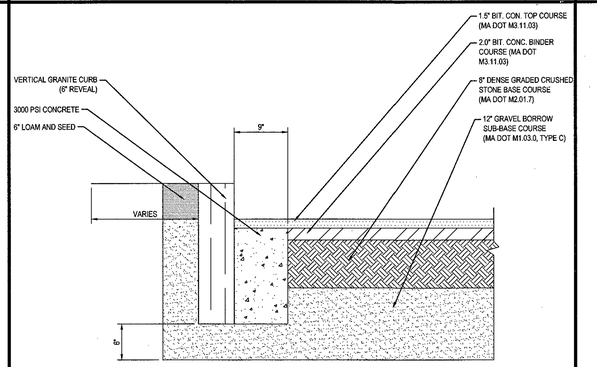
BOLLARD DETAIL — N.T.S.



NOTE:
BOTTOM OF SIGNS SHALL BE AT A MIN. 5' HEIGHT ABOVE GROUND.
TOP OF SIGNS SHALL BE AT A MAX. 8' HEIGHT ABOVE GROUND.

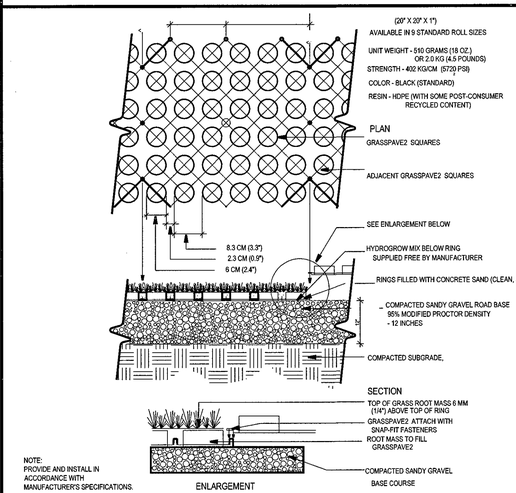
ACCESSIBLE PARKING SIGN DETAIL — N.T.S.

TRANSITION CURB DETAIL — N.T.S.



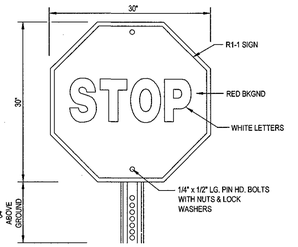
NOTES:
1. GRANITE CURBING TO BE USED AT FULL LENGTH OF CURVES AT INTERSECTIONS AND ADJACENT TO GUIDE RAILS
2. REFER TO PLAN SHEETS FOR LOCATION OF GRANITE CURBING

GRANITE CURBING DETAIL — N.T.S.

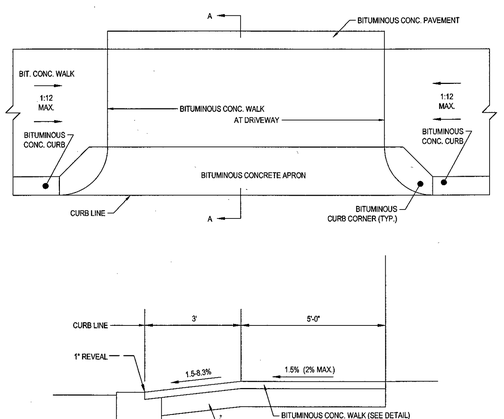


NOTE:
PROVIDE AND INSTALL IN
ACCORDANCE WITH
MANUFACTURER'S SPECIFICATIONS.

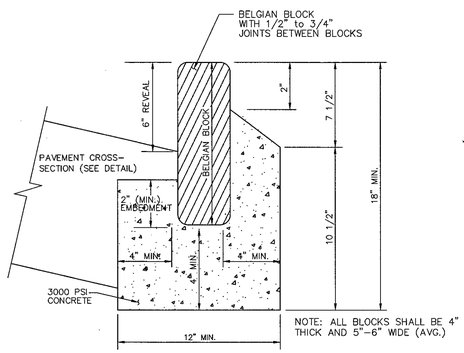
REINFORCED TURF EMERGENCY ACCESS DETAIL — N.T.S.



'STOP' SIGN DETAIL — N.T.S.

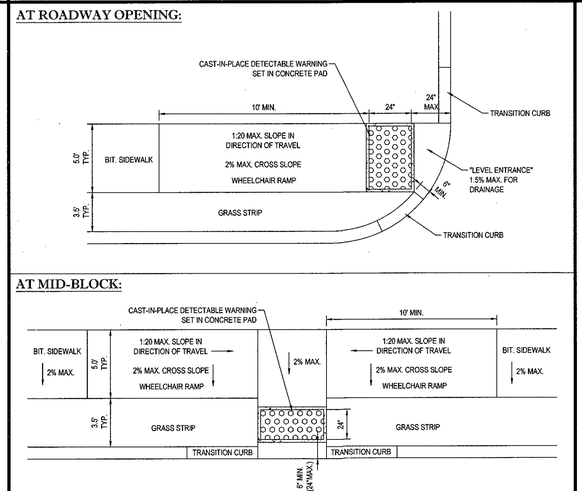


CURB CUT DETAIL — N.T.S.

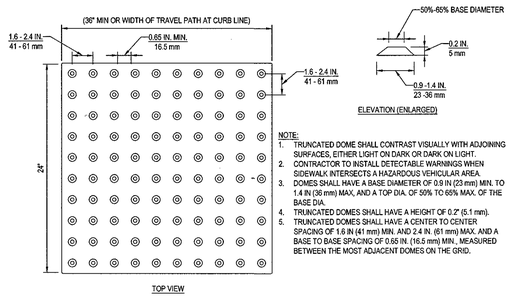


NOTES:
1. THE JOINTS BETWEEN BLOCKS SHALL BE ½" – ¾" CEMENT MORTAR (1:2) JOINTS RAKED AND POINTED TO ½" NOSE.

VERTICAL BELGIAN BLOCK CURB DETAIL — N.T.S.



TYPICAL SIDEWALK RAMP DETAIL — N.T.S.



NOTE:
1. TRUNCATED DOME SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT.
2. CONTRACTOR TO INSTALL DETECTABLE WARNINGS WHEN SIDEWALK INTERSECTS A HAZARDOUS VEHICULAR AREA.
3. DOMES SHALL HAVE A BASE DIAMETER OF 0.9 IN (23 mm) MIN. TO 1.4 IN (36 mm) MAX, AND A TOP DIA. OF 50% TO 65% MAX. OF THE BASE DIA.
4. TRUNCATED DOMES SHALL HAVE A HEIGHT OF 0.2" (5.1 mm).
5. TRUNCATED DOMES SHALL HAVE A CENTER TO CENTER SPACING OF 1.6 IN (41 mm) MIN. AND 2.4 IN. (61 mm) MAX. AND A BASE TO BASE SPACING OF 0.65 IN. (16.5 mm) MIN., MEASURED BETWEEN THE MOST ADJACENT DOMES ON THE GRID.

NOTE TO DESIGNER:
IF A WALK CROSSES OR ADJOINS A VEHICULAR WAY WHERE THE WALKING SURFACE AND PAVEMENT ARE NOT SEPARATED BY CURBS, RAILING OR OTHER ELEMENTS, THE BOUNDARY BETWEEN THE AREA SHALL BE DEFINED BY A CONTINUOUS DETECTABLE WARNING WHICH IS MIN. 36" WIDE (ADA ACCESSIBLE GUIDELINES PRINTED 11-4-06) AND MIN. 24" DEPTH.

DETECTABLE WARNING PANEL DETAIL — N.T.S.

BOHLER ENGINEERING
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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_DETAILS

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOT# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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SHEET TITLE:
DETAILS

SHEET NUMBER:
69
OF 85

REV 5 - 08/11/2017

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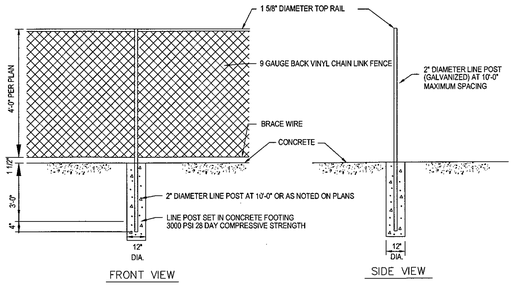
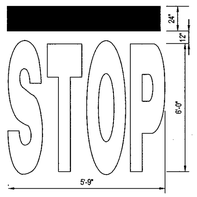


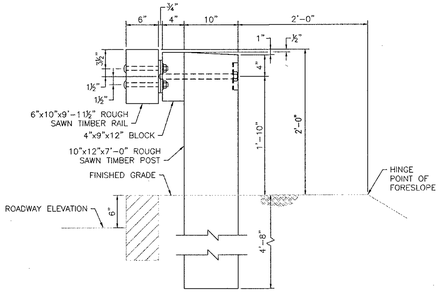
CHAIN LINK FENCE DETAIL

N.T.S.



'STOP' BAR DETAIL

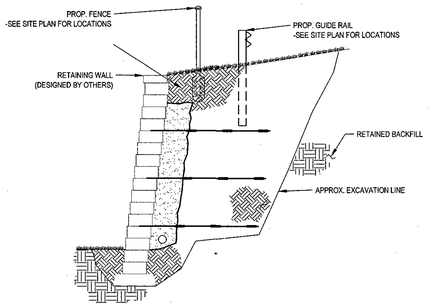
N.T.S.



NOTE:
CRASH TESTED TIMBER GUIDERAIL SYSTEM SHALL BE UTILIZED AT PROPOSED RETAINING WALLS ADJACENT TO ROADWAYS.

TYPICAL STEEL-BACKED TIMBER GUIDERAIL DETAIL

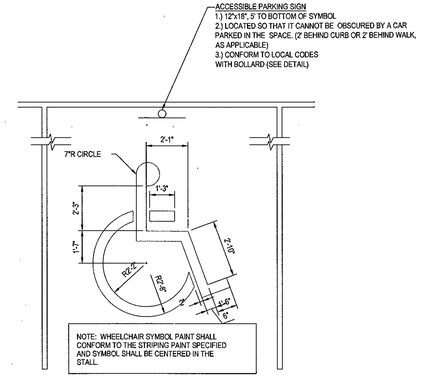
N.T.S.



NOTES:
[1] THIS DETAIL PROVIDED FOR REFERENCE ONLY. DESIGN OF PROPOSED RETAINING WALLS TO BE PREPARED BY A LICENSED STRUCTURAL ENGINEER.
[2] RETAINING WALL & ASSOCIATED REINFORCEMENT SHALL BE DESIGNED TO ACCOMMODATE PROPOSED FENCE, GUIDE RAIL, SUBSURFACE STRUCTURES, UTILITIES AND ALL OTHER WORK SHOWN ON THESE SITE DEVELOPMENT PLANS.
[3] RETAINING WALL DESIGNER MUST ACCOUNT FOR MULTIPLE STORM STRUCTURES BEHIND WALL INCLUDING PARALLEL STORM PIPE THAT MAY INTERFERE WITH GEOSYNTHETIC REINFORCEMENT.
[4] SEE GRADING & DRAINAGE PLAN FOR PROPOSED ELEVATIONS AND SLOPES ASSOCIATED WITH SAME.

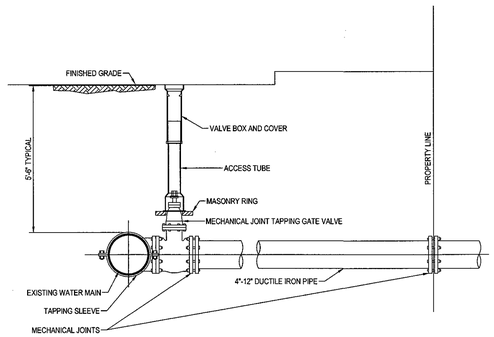
TYPICAL RETAINING WALL DETAIL

N.T.S.



ACCESSIBLE PARKING STALL PAINTING DETAIL

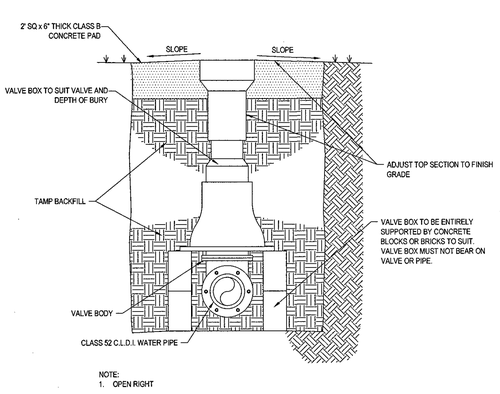
N.T.S.



NOTE:
1. DETAIL SHOWN FOR GRAPHICAL PURPOSES ONLY. PROVIDE WATER CONNECTION IN ACCORDANCE WITH UTILITY OWNER'S REQUIREMENTS.
2. OPEN RIGHT

TYPICAL WATER PIPE CONNECTION WITH TAPPING SLEEVE AND GATE VALVE DETAIL

N.T.S.

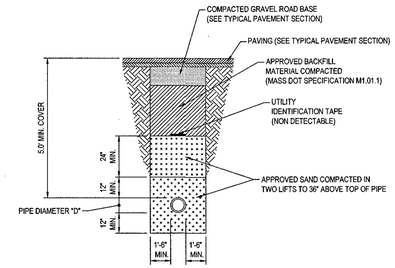


NOTE:
1. OPEN RIGHT

GATE VALVE DETAIL

N.T.S.

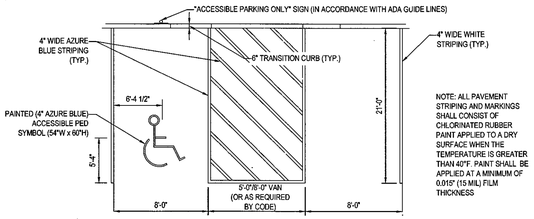
NOTE: THE CONTRACTOR IS DIRECTED AND RESPONSIBLE TO SLOPE AND/OR SHIELD THE TRENCH EXCAVATION IN ACCORDANCE WITH ALL APPLICABLE OSHA REGULATIONS.



NOTE:
1. DETAIL SHOWN FOR GRAPHICAL PURPOSES ONLY. PROVIDE WATER LINE TRENCH IN ACCORDANCE WITH UTILITY OWNER'S REQUIREMENTS.

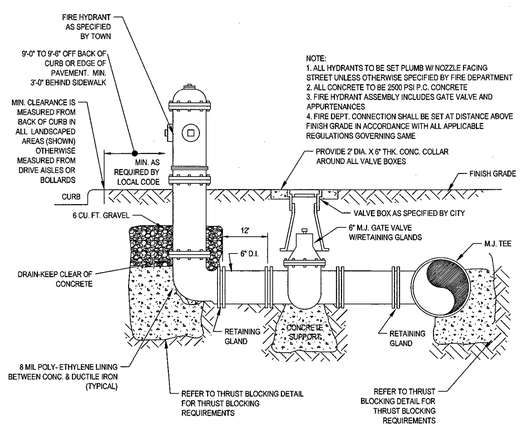
TYPICAL WATER TRENCH DETAIL

N.T.S.



ACCESSIBLE STALL MARKINGS & PARKING LOT STRIPING DETAIL

N.T.S.



FIRE HYDRANT ASSEMBLY DETAIL

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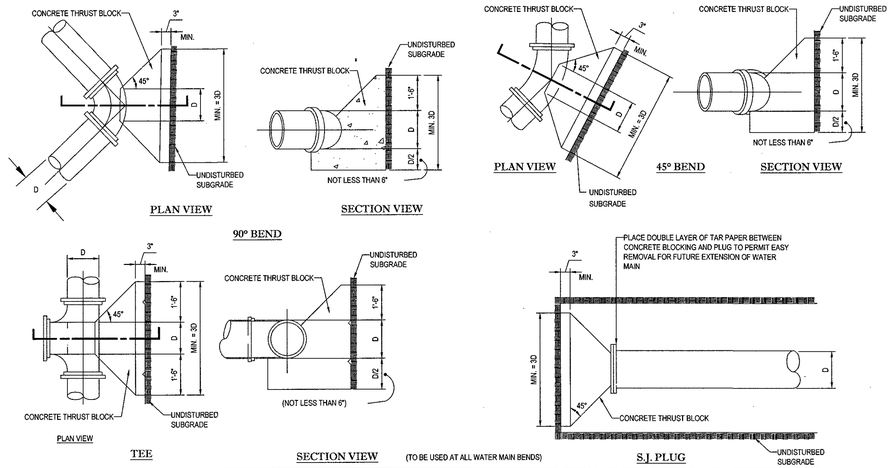

THRUST BLOCK DETAIL

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1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_DETAILS

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers
LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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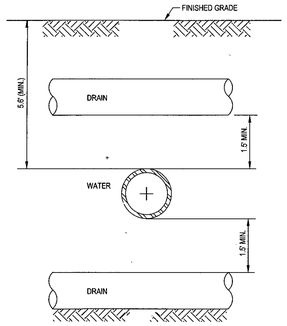
SHEET TITLE:
DETAILS

SHEET NUMBER:
70
OF 85

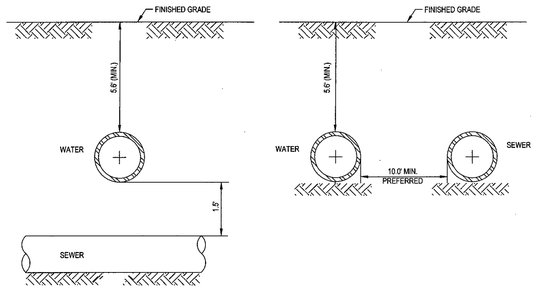
REV 5 - 08/11/2017



NOTE: REFER TO CONCRETE ENCASEMENT DETAIL (THIS SHEET) WHERE VERTICAL SEPARATION CAN NOT BE ACHIEVED.

WATER/DRAIN CROSSING DETAIL

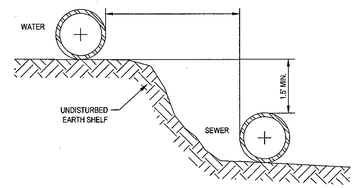
N.T.S.



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

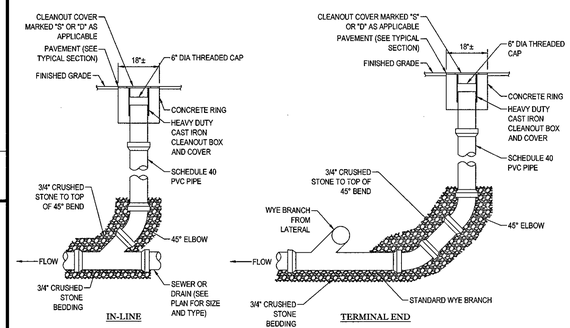
WATER/SEWER CROSSING DETAIL

N.T.S.



WATER/SEWER SEPARATION DETAIL

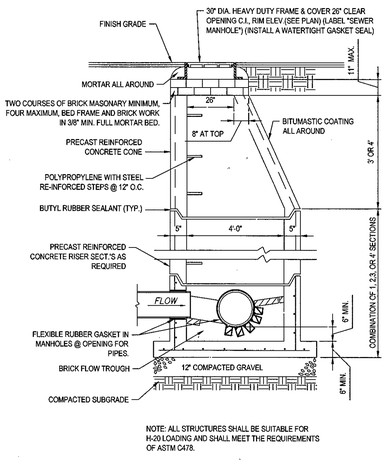
N.T.S.



NOTES:
1. CLEANOUTS TO BE INSTALLED WHERE INDICATED ON THE PLANS, AT A MINIMUM WITHIN 10 FEET OF ALL BUILDING FOUNDATIONS IN ACCORDANCE TO THE TOWN OF MILLIS GUIDELINES.
2. CLEANOUT PIPE TO BE SAME SIZE AND MATERIAL AS SEWER/DRAIN LINE UP TO 8".
3. BACKFILL TO TOP OF 45° WITH 3/4" CRUSHED STONE.

SEWER / DRAIN CLEANOUT DETAIL

N.T.S.

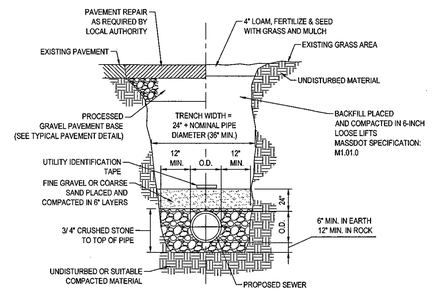


NOTE: ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.

TYPICAL PRECAST CONCRETE SANITARY MANHOLE DETAIL

N.T.S.

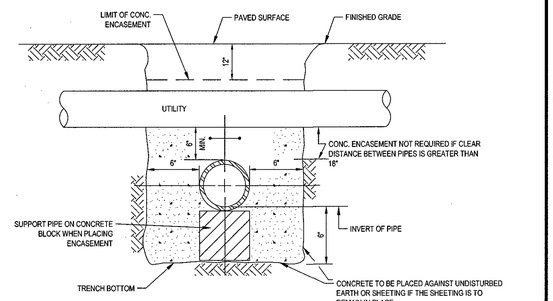
NOTE: THE CONTRACTOR IS DIRECTED AND RESPONSIBLE TO SLOPE AND/OR SHIELD THE TRENCH EXCAVATION IN ACCORDANCE WITH ALL APPLICABLE OSHA REGULATIONS.



NOTE:
1. DETAIL SHOWN FOR GRAPHICAL PURPOSES ONLY. PROVIDE SEWER LINE TRENCH IN ACCORDANCE WITH UTILITY OWNER'S REQUIREMENTS.

SEWER AND FORCE MAIN TRENCH DETAIL

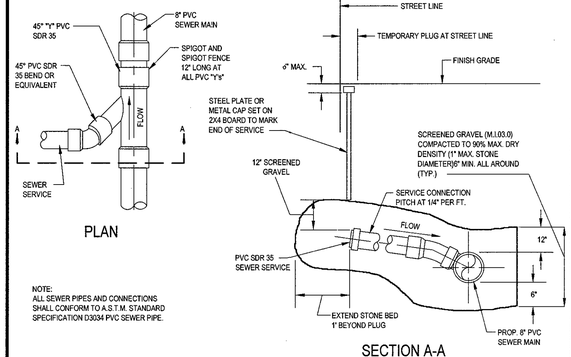
N.T.S.



NOTES:
- PIPE MUST BE BRACED VERTICALLY & HORIZONTALLY TO PREVENT FLOATATION DURING PLACEMENT OF CONCRETE
- ALL CONCRETE ENCASEMENT SHALL BE KEPT 12" BELOW THE BOTTOM OF ASPHALT PAVEMENT
- CONCRETE ENCASEMENT SHALL EXTEND 1.5' IN EITHER DIRECTION OF CROSSING EXCEPT FOR WATER/SEWER CROSSINGS, WHICH SHALL EXTEND 10' IN EITHER DIRECTION OF CROSSING.

CONCRETE ENCASEMENT DETAIL AT UTILITY CROSSING

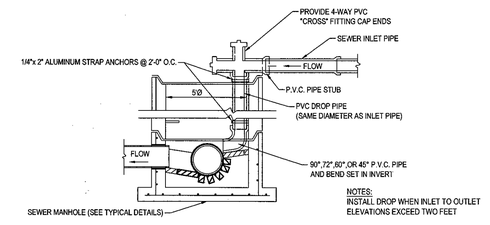
N.T.S.



NOTE:
ALL SEWER PIPES AND CONNECTIONS SHALL CONFORM TO A.S.T.M. STANDARD SPECIFICATION D3034 PVC SEWER PIPE.

GRAVITY SEWER SERVICE CONNECTION DETAIL

N.T.S.

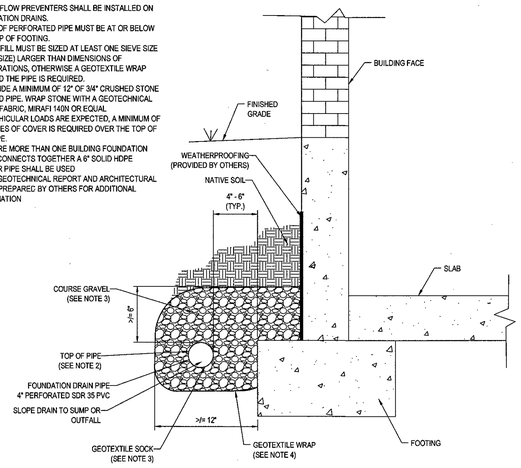


NOTES:
INSTALL DROP WHEN INLET TO OUTLET ELEVATIONS EXCEED TWO FEET

SEWER DROP MANHOLE DETAIL

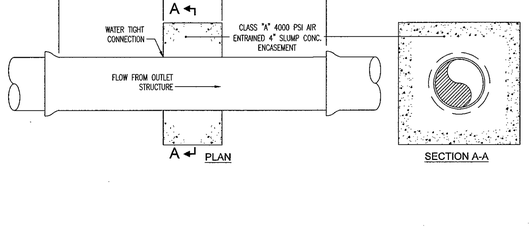
N.T.S.

NOTES:
1. BACKFLOW PREVENTERS SHALL BE INSTALLED ON FOUNDATION DRAINS.
2. TOP OF PERFORATED PIPE MUST BE AT OR BELOW THE TOP OF FOOTING.
3. BACKFILL MUST BE SIZED AT LEAST ONE SIEVE SIZE (ROCK SIZE) LARGER THAN DIMENSIONS OF PERFORATIONS, OTHERWISE A GEOTEXTILE WRAP AROUND THE PIPE IS REQUIRED.
4.PROVIDE A MINIMUM OF 12" OF 3/4" CRUSHED STONE AROUND PIPE. WRAP STONE WITH A GEOTECHNICAL FILTER FABRIC, MIRAFI 140N OR EQUAL
5. IF VEHICULAR LOADS ARE EXPECTED, A MINIMUM OF 12-INCHES OF COVER IS REQUIRED OVER THE TOP OF THE PIPE
6. WHERE MORE THAN ONE BUILDING FOUNDATION DRAIN CONNECTS TOGETHER A 6" SOLID HDPE HEADER PIPE SHALL BE USED
7. SEE GEOTECHNICAL REPORT AND ARCHITECTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL INFORMATION



FOUNDATION DRAIN DETAIL

N.T.S.

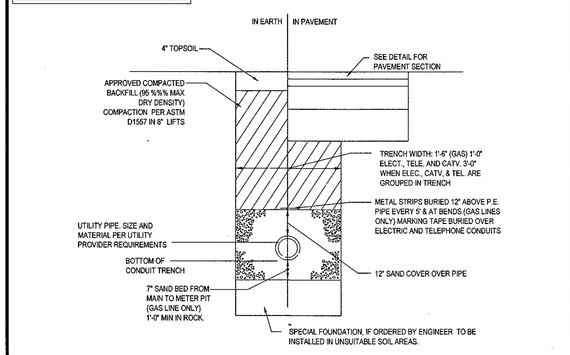


NOTE:
FIELD POURED COLLARS SHALL HAVE A MINIMUM THICKNESS OF TWELVE (12) INCHES. COLLARS MAY NOT BE INSTALLED WITHIN TWO (2) FEET OF PIPE JOINTS. PRECAST COLLARS NOT ALLOWED ON CORRUGATED PIPE.

ANTI-SEEP COLLAR DETAIL

N.T.S.

NOTE: THE CONTRACTOR IS DIRECTED AND RESPONSIBLE TO SLOPE AND/OR SHIELD THE TRENCH EXCAVATION IN ACCORDANCE WITH ALL APPLICABLE OSHA REGULATIONS.



ELECTRICAL, TELEPHONE AND GAS TRENCH DETAIL

N.T.S.

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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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13			
14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_DETAILS

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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SHEET TITLE:
DETAILS

SHEET NUMBER:
71
OF 85

REV 5 - 08/11/2017

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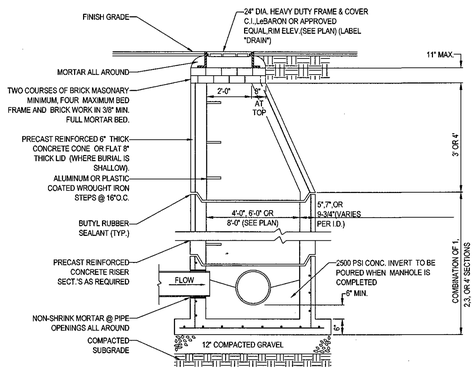
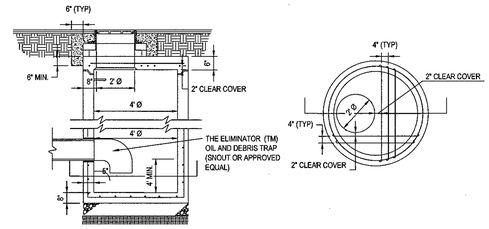


NOTE:
ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.

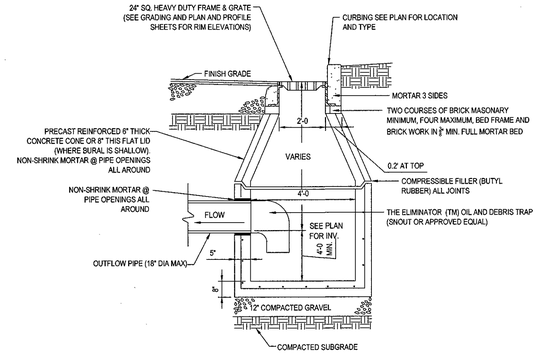
TYPICAL DRAIN MANHOLE DETAIL

N.T.S.



PRECAST FLAT SLAB TOP FOR CATCH BASIN DETAIL

N.T.S.

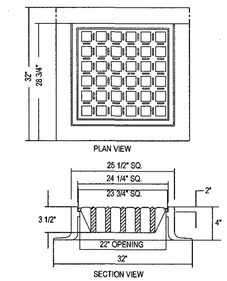


NOTES:
1. ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
2. USE PRECAST FLAT SLAB TOP FOR SHALLOW INVERT APPLICATIONS. SEE DETAIL.

STANDARD PRECAST CONCRETE DEEP SUMP CATCH BASIN DETAIL

N.T.S.

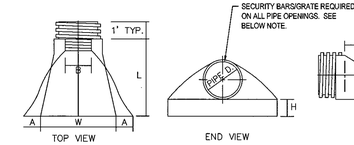
FRAME: EJ MODEL LF244-2 (4 FLANGE) REF. MHD 201.6.0
GRATE: EJ MODEL L2-3G17 OR APPROVED EQUALS.
USE MASSDOT CASCADE GRATE (L24SG18) WHERE GRADES ARE IN EXCESS OF 5%



NOTES:
1. FULLY MACHINED AND INTERCHANGABLE FRAMES AND COVERS. HIGH QUALITY MATERIALS AND WORKMANSHIP. COAL TAR EPOXY PAINTED, NO ROCK COVERS. H-20 LOADING RATE WEIGHT OF GRATE: 215 LBS. WEIGHT OF FRAME: 4 FLANGES - 295 LBS REFERENCE MASSDOT STANDARD DETAIL 201.6.0.

TYPICAL CATCH BASIN SINGLE GRATE DETAIL

N.T.S.



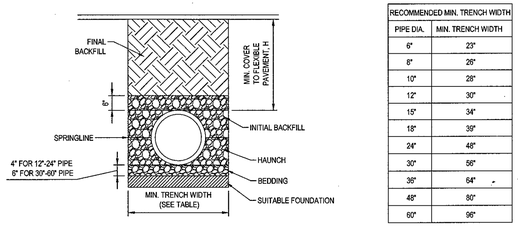
PIPE DIAMETER	DIMENSION (Inches)					
	PART NO.	A(1±)	B MAX	H(1±)	L(1/2±)	W(2±)
12" and 15"	1210 NP	6.5	10	6.5	25	29
18"	1810 NP	7.5	15	6.5	32	35
24"	2410 NP	7.5	18	6.5	36	45
30"	3015 NP	7.5	22	8.6	58	63
36"	3615 NP	10.5	NA	7.0	58	63

NOTES:

1. ALL PIPE ENDS SHALL HAVE SECURITY BARS / GRATES INSTALLED. PIPE OPENINGS OF 12 INCHES IN DIAMETER SHALL HAVE A SINGLE BAR GRATE THROUGH THE CENTER OF THE PIPE. THE GRATES SHALL BE CONSTRUCTED OF STEEL BARS, NOT LESS THAN ½" DIAMETER, WELDED TOGETHER TO PROVIDE A GRATE NOT SMALLER THAN THE PIPE OPENING. THE VERTICAL BARS SHALL BE PLACED WITH 4 INCH CLEAR OPENINGS BETWEEN THEM, AND THE HORIZONTAL BARS SHALL BE PLACED 6 INCHES ON CENTER. THE GRATES SHALL BE INSTALLED IN SUCH A MANNER AS TO ALLOW REMOVAL FOR MAINTENANCE PURPOSES. A SUITABLE SKETCH OF THE GRATE AND METHOD OF INSTALLATION SHALL BE SUBMITTED FOR APPROVAL WITH THE PLANS FOR THE DRAINS AND APPURTENANCES.

ADS END SECTION DIMENSIONS DETAIL

N.T.S.



RECOMMENDED MIN. TRENCH WIDTH	
PIPE DIA.	MIN. TRENCH WIDTH
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
48"	80"
60"	96"

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321 , "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION.

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

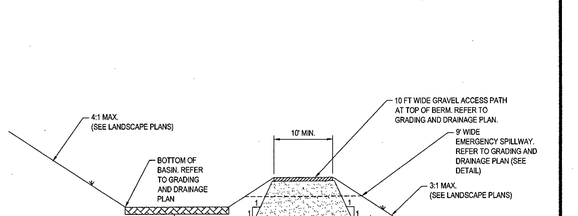
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

HDPE STORM DRAINAGE TRENCH DETAIL

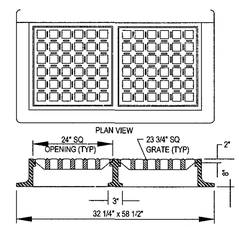
N.T.S.



NOTE: FOUNDATION FOR BERM CONSTRUCTION SHALL BE CLEARED OF ALL TOP SOIL, ROCKS, STUMPS, OR OTHER DELETERIOUS MATERIAL TO A FIRM SURFACE.

BASIN IMPERVIOUS CORE DETAIL

N.T.S.

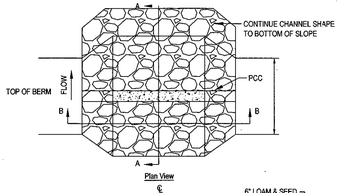


FRAME: EJ MODEL LV2448-2 GRATE: EJ MODEL L24SG17 (USE 2 GRATES) OR APPROVED EQUALS. USE MASSDOT CASCADE GRATE WHERE GRADES ARE IN EXCESS OF 5%

NOTES:
FULLY MACHINED AND INTERCHANGABLE FRAMES AND COVERS. HIGH QUALITY MATERIALS AND WORKMANSHIP. COAL TAR EPOXY PAINTED, NO ROCK COVERS. H-20 LOADING RATE 3 FLANGE FRAMES TO BE USED WITH CURB INLET

TYPICAL CATCH BASIN DOUBLE GRATE DETAIL

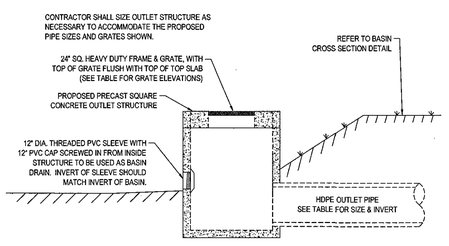
N.T.S.



OVERFLOW SPILLWAY

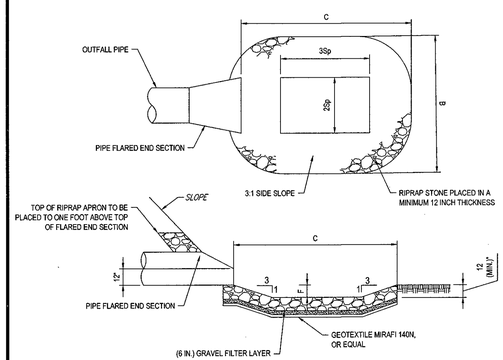
N.T.S.

BASIN #	GRATE ELEV. (FT)	OUTLET PIPE SIZE (IN.)	OUTLET PIPE LENGTH (FT)	OUTLET PIPE SLOPE (%)	OUTLET PIPE INV. ELEV. AT STRUCTURE (FT)	OUTLET PIPE INV. ELEV. AT OUTFALL (FT)
B-1	146.70	15"	35.5'	1.4%	144.50	144.00
B-2	147.00	30"	28'	0.5%	143.25	143.10
B-3	150.40	15"	31'	2.3%	147.70	147.00
B-4	155.59	15"	69'	0.5%	152.85	152.50
B-5	162.55	15"	69'	0.5%	159.35	159.00
B-6	175.20	15"	29'	1.0%	172.30	172.00
B-7	172.15	15"	25'	3.6%	168.90	168.00
B-9	162.00	15"	32'	0.6%	158.20	158.00
B-10	153.00	15"	29'	2.6%	149.75	149.00
B-11	148.40	24"	55'	0.5%	145.28	145.00
B-12	156.80	15"	90'	0.6%	153.55	153.00
B-13	171.25	15"	23'	0.5%	168.12	168.00
B-14	159.40	15"	28'	0.5%	156.15	156.00
B-15	161.90	15"	28'	2.4%	158.65	158.00
B-17	168.60	15"	27'	1.9%	164.50	164.00
B-18	158.00	15"	29'	1.7%	154.50	154.00
B-19	163.20	15"	38'	1.3%	160.45	160.00



OUTLET CONTROL STRUCTURE

N.T.S.



SCOUR HOLE CHART

LOCATION	D /Sp (in.)	F (ft.)	C (ft.)	B (ft.)	d (in.)
FES-1	24	1.0	12.0	10.0	18
FES-2	12	0.50	6.0	5.0	12
FES-3	24	1.0	12.0	10.0	18
FES-4	30	1.25	15.0	13.0	18
FES-5	24	1.0	12.0	10.0	18
FES-6	12	0.50	6.0	5.0	12
FES-7	30	1.25	15.0	13.0	18
FES-8	15	0.625	8	6	12
FES-9	36	1.5	18	15	18
FES-10	12	0.50	6.0	5.0	12
FES-11	15	0.625	8	6	12
FES-12	12	SEE PLAN			12
FES-13	12	SEE PLAN			12
FES-14	12	SEE PLAN			12
FES-15	18	SEE PLAN			12
FES-16	30	1.25	15.0	13.0	18
FES-17	12	0.50	6.0	5.0	12
FES-18	12	SEE PLAN			12
FES-19	15	0.625	8	6	12
FES-20	12	SEE PLAN			12
FES-21	12	0.50	6.0	5.0	12
FES-22	18	0.75	9.0	8.0	16
FES-23	12	0.50	6.0	5.0	12
FES-24	18	0.75	9.0	8.0	16
FES-25	12	0.50	6.0	5.0	12
FES-26	12	0.50	6.0	5.0	12
FES-27	12	SEE PLAN			12

FLARED END SECTION WITH RIP RAP APRON / SCOUR HOLE DETAIL

N.T.S.

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.: W161041_SS5_DETAILS

PROJECT: SITE DEVELOPMENT PLANS FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
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SHEET TITLE: DETAILS

SHEET NUMBER: 72 OF 85

REV 5 - 08/11/2017

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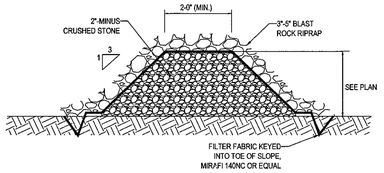
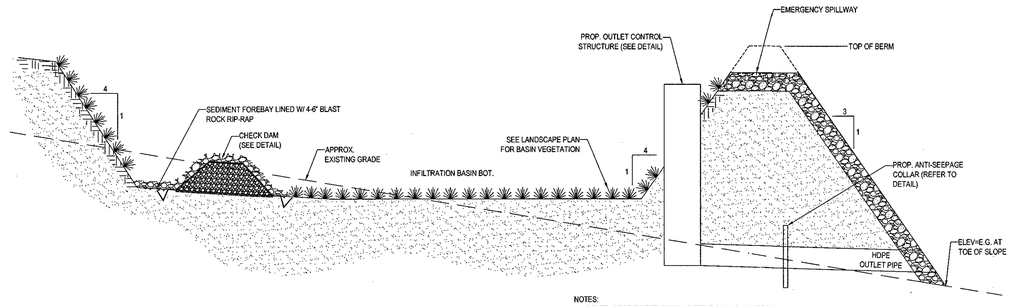


NOTES:
1. STONE SHALL BE PLACED MECHANICALLY OR BY HAND. STONE SHALL NOT BE DUMPED DIRECTLY INTO FOREBAY. SEE GRADING AND DRAINAGE PLAN.

STONE CHECK DAM DETAIL

N.T.S.

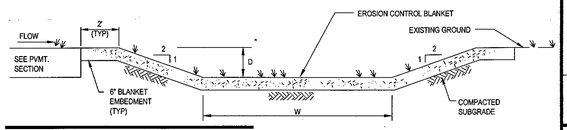
Basin	ESHGW (ft)	Design Infiltration Rate (in/hr)	Bottom Elev. (ft)	Calculated 100YR Elev. (ft)	Top of Berm Elev. (ft)
1	142.43	2.41	144.50	146.64	148.00
2	141.60	1.02	145.00	147.67	148.70
3	145.70	0.52	147.70	149.90	151.70
4	151.50	2.41	154.00	155.47	157.00
5	157.50	2.41	160.10	162.43	163.60
6	171.10	2.41	173.50	175.43	176.50
7	N/A	2.41	171.00	172.00	174.00
8	145.20	8.27	147.40	150.09	151.40
9	150.00	2.41	159.50	162.15	163.40
10	148.33	1.02	150.50	152.79	154.00
11	140.60	2.41	146.00	148.78	149.80
12	152.03	2.41	154.50	157.15	158.30
13	N/A	2.41	169.00	170.94	171.96
14	154.30	2.41	156.50	159.25	160.60
15	156.60	2.41	160.00	161.12	162.80
16	164.50	2.41	166.50	168.59	169.60
16A	N/A	2.41	166.50	168.59	169.60
17	N/A	2.41	166.00	168.07	169.10
18	153.70	2.41	156.00	158.01	159.10
19	157.50	2.41	161.00	163.32	164.35



NOTES:
1. CONTRACTOR TO ESTABLISH VEGETATION IN BASIN PRIOR TO PAVING.
2. PARENT MATERIAL & FILL MATERIAL SOILS SHALL NOT BE COMPACTED TO REDUCE INFILTRATION CAPACITY. IF SOILS WITHIN THE FOOTPRINT OF THE INFILTRATION BASIN ARE COMPACTED, COMPACTED SOILS SHALL BE REMOVED AND REPLACED.

TYPICAL DETENTION/INFILTRATION BASIN SECTION

N.T.S.



NOTE:

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

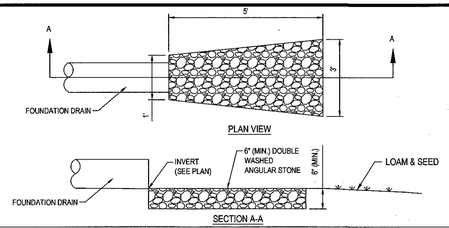
GRASS SWALE

SWALE DESIGNATION	W	D
TYPICAL *	2'	2'

* UNLESS OTHERWISE NOTED ON GRADING PLANS

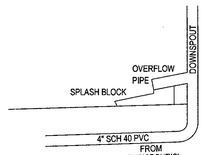
GRASSED SWALE DETAIL

N.T.S.



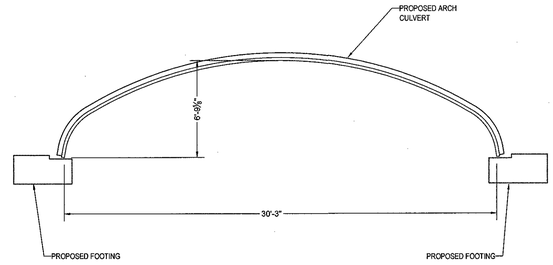
FOUNDATION DRAIN OUTLET PROTECTION DETAIL

N.T.S.



DOWNSPOUT DETAIL

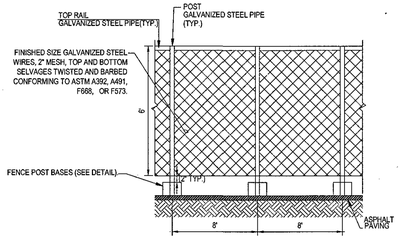
N.T.S.



NOTE: CROSSING DETAIL FOR GRAPHICAL PURPOSES ONLY. PLEASE SEE PLANS BY STRUCTURAL ENGINEER FOR MORE INFORMATION.

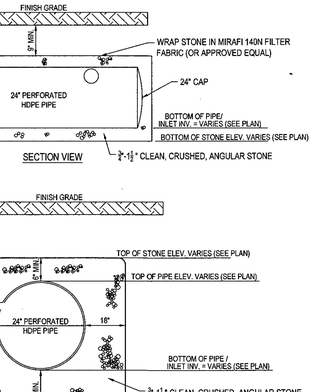
ROAD J STREAM CROSSING DETAIL

N.T.S.



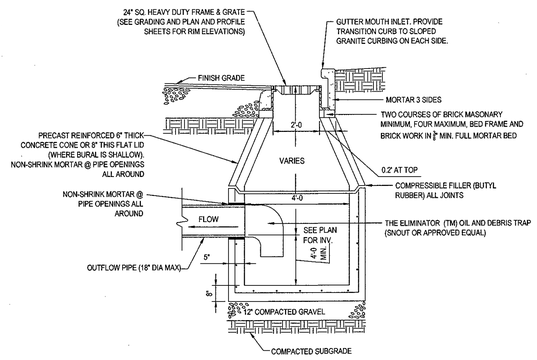
TEMPORARY CHAIN LINK FENCE

N.T.S.



SUBSURFACE INFILTRATION TRENCH

N.T.S.



NOTES:
1. ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
2. USE PRECAST FLAT SLAB TOP FOR SHALLOW INVERT APPLICATIONS. SEE DETAIL.

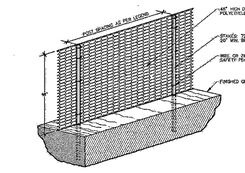
PRECAST CONCRETE DEEP SUMP CATCH BASIN WITH CURB INLET

N.T.S.

48" Construction Fence, 72" T-Posts

LEGEND

SAF12	48" ORANGE FENCE, 12 FEET O.C.
SAF11	48" ORANGE FENCE, 11 FEET O.C.
SAF10	48" ORANGE FENCE, 10 FEET O.C.
SAF9	48" ORANGE FENCE, 9 FEET O.C.
SAF8	48" ORANGE FENCE, 8 FEET O.C.
SAF7	48" ORANGE FENCE, 7 FEET O.C.
SAF6	48" ORANGE FENCE, 6 FEET O.C.



Note: Temporary construction fencing shall conform to all applicable local, state, and federal regulations governing same and be installed in accordance with same.

CONSTRUCTION FENCE

N.T.S.

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◆ CENTRAL VIRGINIA
◆ RICHMOND, VA
◆ RALEIGH, NC
◆ CHARLOTTE, NC
◆ TAMPA, FL
◆ SOUTH FLORIDA
◆ UPSTATE NEW YORK
◆ NEW ENGLAND
◆ BOSTON, MA
◆ METRO NEW JERSEY
◆ NEW YORK, NY
◆ NEW JERSEY

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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/09/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
7			
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_DETAILS

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
Fax: (508) 480-9080
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MAINE LICENSE No. 9580
NEW YORK LICENSE No. 071264-1
FLORIDA LICENSE No. 66202

SHEET TITLE:
DETAILS

SHEET NUMBER:
73
OF 85

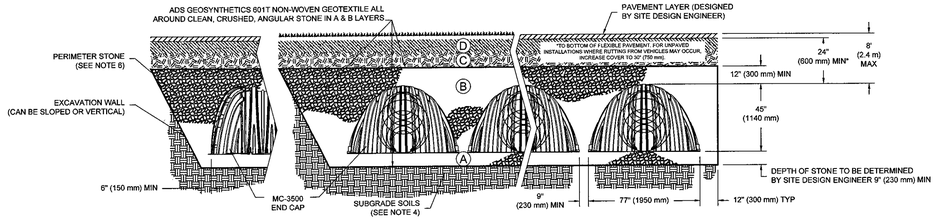
REV 5 - 08/11/2017

P:\1BW\W161041\Drawing\Plan Sets\Residential\RCW\W161041_sss_Details.dwg, 73-DETAILS, 10/6/2014, 4:26:00 PM, Jay, Xerox5135-1.pc3, Use534, 1:1

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

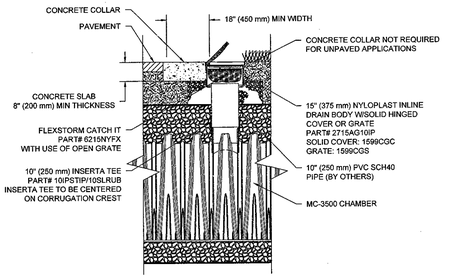


NOTES:

1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
   PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

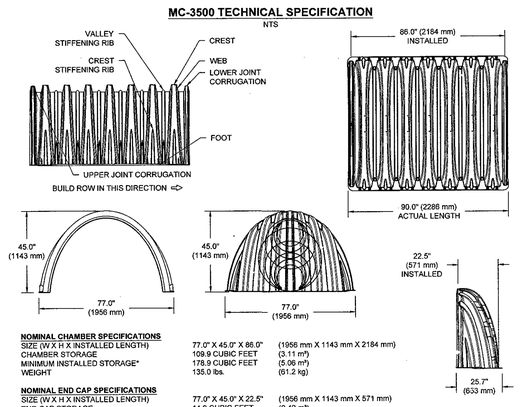
MC-3500 CROSS-SECTION

N.T.S.



MC-3500 10" INSPECTION PORT

N.T.S.



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	178.9 CUBIC FEET	(5.06 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 22.5"	(1956 mm X 1143 mm X 571 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	46.0 CUBIC FEET	(1.30 m³)
WEIGHT	50.0 lbs.	(22.7 kg)

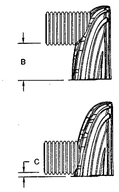
*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	—
MC3500IEPP06B		—	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	—
MC3500IEPP08B		—	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	—
MC3500IEPP10B		—	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	—
MC3500IEPP12B		—	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	—
MC3500IEPP15B		—	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	—
MC3500IEPP18BC		—	1.77" (45 mm)
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	—
MC3500IEPP24BC		—	2.06" (52 mm)
MC3500IEPP30BC	30" (750 mm)	—	—

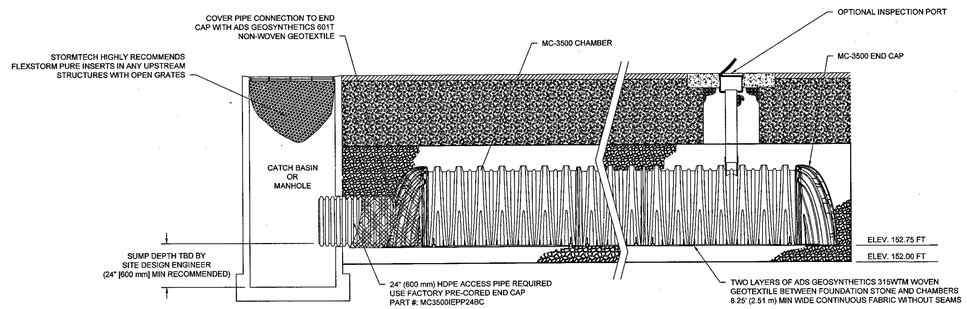
NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS.
CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm)
THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHTEST POSSIBLE FOR THE PIPE SIZE.



MC-3500 SECTION

N.T.S.



MC-3500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-3500 PROFILE

N.T.S.

PROPOSED LAYOUT: SYSTEM 1

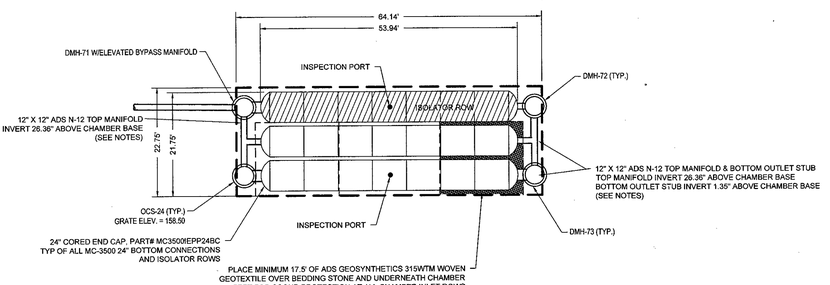
(21) STORMTECH MC-3500 CHAMBERS
(6) STORMTECH MC-3500 END CAPS
INSTALLED WITH 12" COVER STONE, 9 BASE STONE, 40% STONE VOID
INSTALLED SYSTEM VOLUME: 4,236 CF
AREA OF SYSTEM: 1,459 FT²
PERIMETER OF SYSTEM: 173.78 FT

PROPOSED ELEVATIONS: SYSTEM 1

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	164.50
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	159.00
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	158.50
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	158.50
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	158.50
TOP OF STONE:	157.50
TOP OF CHAMBER:	156.50
12" TOP MANIFOLD INVERT:	154.95
24" ISOLATOR ROW INVERT:	152.92
12" BOTTOM MANIFOLD INVERT:	152.96
BOTTOM OF CHAMBER:	152.75
BOTTOM OF STONE:	152.00

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH SHEET #7 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE RETAINING WALL AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE RETAINING WALL'S INTEGRITY.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE SLOPE AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE SLOPE'S INTEGRITY.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.



MC-3500 UNDERGROUND BASIN LAYOUT

N.T.S.

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◆◆ BOSTON, MA ◆◆ SOUTHEASTERN, PA ◆◆ RALEIGH, NC
◆◆ CENTRAL NEW JERSEY ◆◆ WILMINGTON, DE ◆◆ CHARLOTTE, NC
◆◆ NEW YORK, NY ◆◆ BALTIMORE, MD ◆◆ TAMPA, FL
◆◆ NEW JERSEY ◆◆ SOUTHERN MARYLAND ◆◆ SOUTH FLORIDA

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
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CAD I.D.:	W161041_SS5_DETAILS

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers
LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY, MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
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Phone: (508) 480-9900
Fax: (508) 480-9080
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MAINE LICENSE No. 9490
NEW YORK LICENSE No. 075784-1
FLORIDA LICENSE No. 66202

SHEET TITLE:
DETAILS

SHEET NUMBER:
74
OF 85

REV 5 - 08/11/2017

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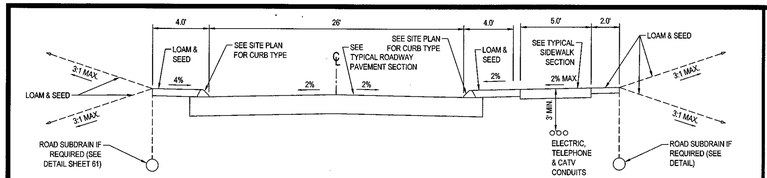
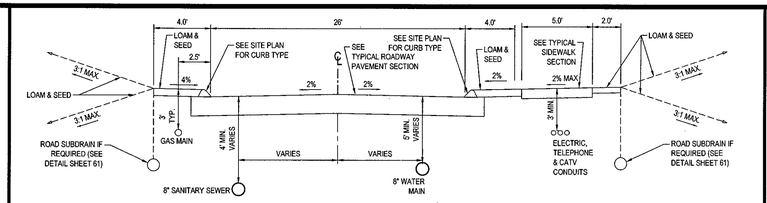


ROAD A

STA. 0+00 TO STA. 1+32

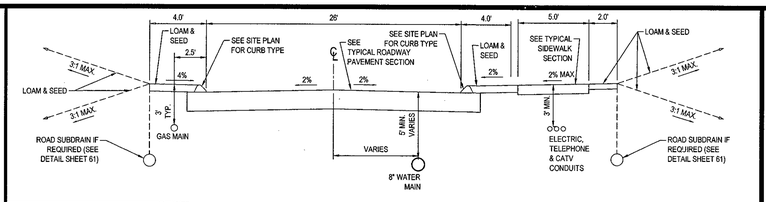
REFER TO ROADWAY CROSS SECTION NOTES



ROAD A

STA. 1+32 TO STA. 15+97

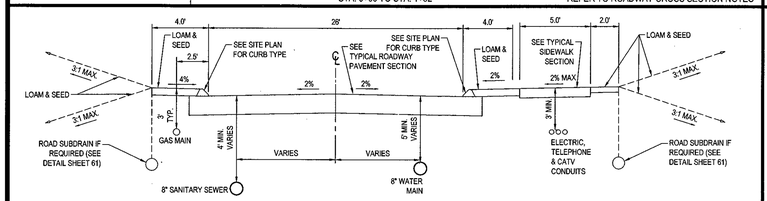
REFER TO ROADWAY CROSS SECTION NOTES



ROAD A

STA. 15+97 TO STA. 18+16

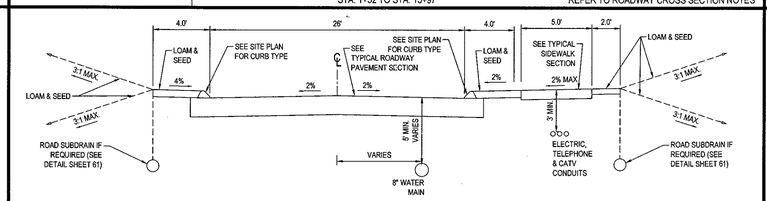
REFER TO ROADWAY CROSS SECTION NOTES



ROAD A

STA. 18+16 TO STA. 43+21

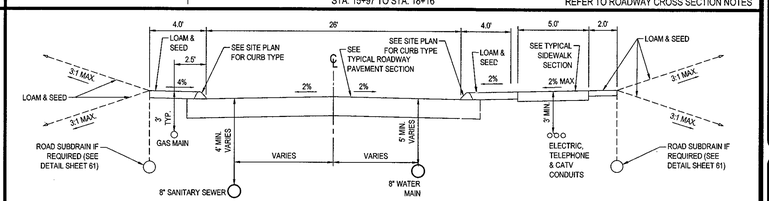
REFER TO ROADWAY CROSS SECTION NOTES



ROAD A

STA. 43+21 TO STA. 45+52

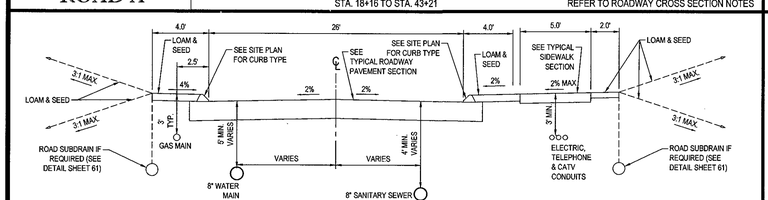
REFER TO ROADWAY CROSS SECTION NOTES



ROAD B

STA. 0+00 TO STA. 4+86

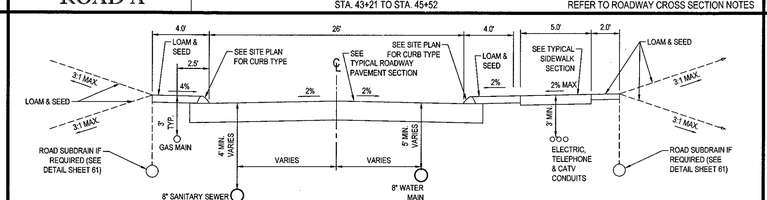
REFER TO ROADWAY CROSS SECTION NOTES



ROAD C

STA. 0+00 TO STA. 6+87

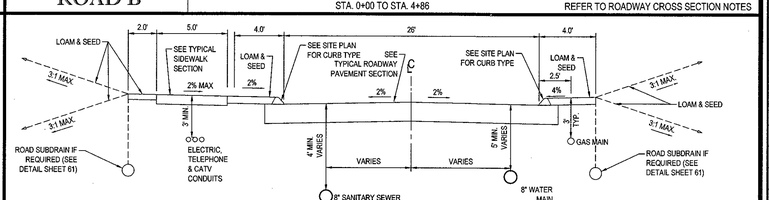
REFER TO ROADWAY CROSS SECTION NOTES



ROAD D

STA. 0+00 TO STA. 9+49

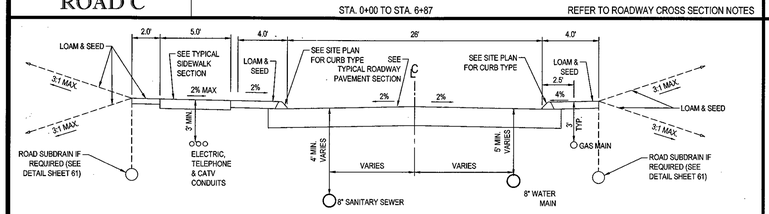
REFER TO ROADWAY CROSS SECTION NOTES



ROAD E

STA. 0+00 TO STA. 6+09

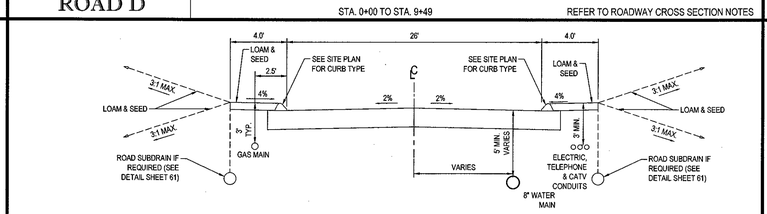
REFER TO ROADWAY CROSS SECTION NOTES



ROAD F

STA. 0+00 TO STA. 6+91

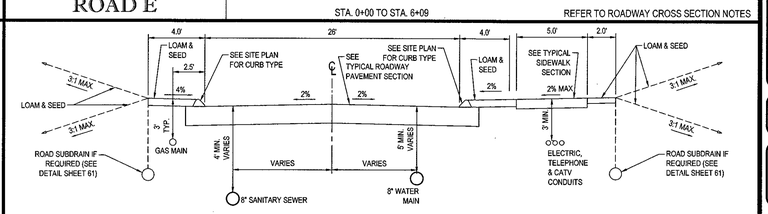
REFER TO ROADWAY CROSS SECTION NOTES



ROAD G

STA. 1+28 TO STA. 2+28

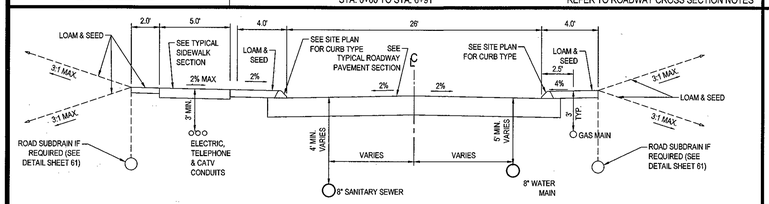
REFER TO ROADWAY CROSS SECTION NOTES



ROAD G

STA. 2+28 TO STA. 17+50

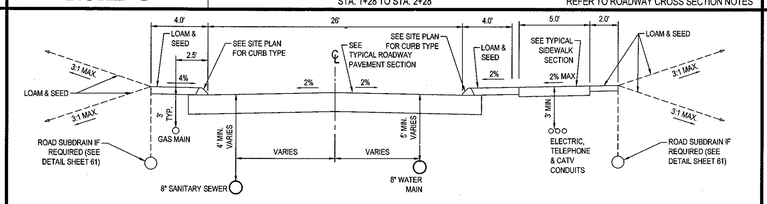
REFER TO ROADWAY CROSS SECTION NOTES



ROAD H

STA. 5+30 TO STA. 21+56

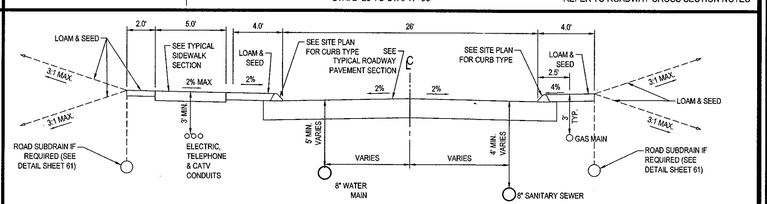
REFER TO ROADWAY CROSS SECTION NOTES



ROAD I

STA. 0+00 TO STA. 12+13

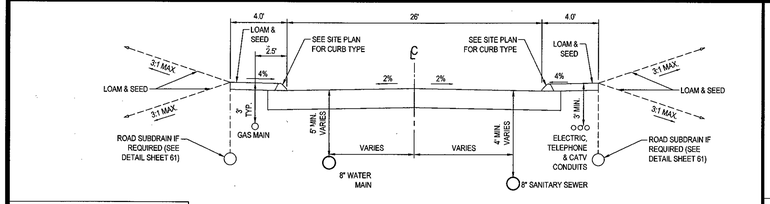
REFER TO ROADWAY CROSS SECTION NOTES



ROAD J

STA. 0+00 TO STA. 5+81

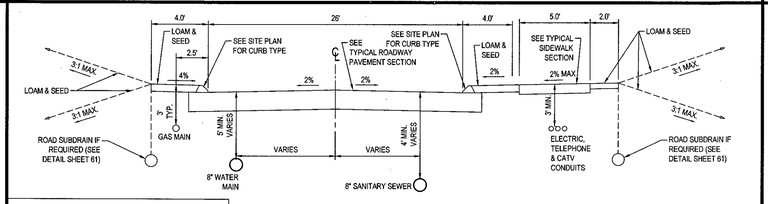
REFER TO ROADWAY CROSS SECTION NOTES



ROAD K

STA. 0+00 TO STA. 2+78

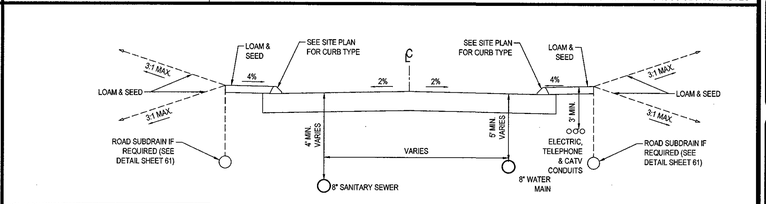
REFER TO ROADWAY CROSS SECTION NOTES



ROAD L

STA. 0+00 TO STA. 3+24

REFER TO ROADWAY CROSS SECTION NOTES



ROAD M

STA. 0+00 TO STA. 3+30

REFER TO ROADWAY CROSS SECTION NOTES

ROADWAY CROSS SECTION NOTES:

1. REFER TO SITE PLAN SHEETS FOR EXACT LOCATION OF MODIFIED CAPE COD BERM.
2. REFER TO SITE PLAN SHEETS FOR ADDITIONAL INFORMATION REGARDING SIDEWALK LOCATIONS.
3. DIMENSIONS TO AND LOCATIONS OF UTILITIES REPRESENT GENERAL GUIDELINES. REFER TO UTILITY PLAN SHEETS FOR ACTUAL UTILITY LOCATIONS.
4. SUBDRAIN TYPICAL FOR SECTIONS IN CUT. CONNECT SUBDRAIN TO CLOSEST DOWNSTREAM DRAINAGE STRUCTURE OR DAYLIGHT AS FEASIBLE.
5. REFER TO GRADING AND DRAINAGE PLANS FOR LOCATIONS OF PROPOSED DRAINAGE STRUCTURES AND PIPING.
6. REFER TO LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.

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BOHLER ENGINEERING

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

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◆ NEW YORK METRO
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◆ NEW JERSEY

CENTRAL VIRGINIA
◆ RICHMOND, VA

SOUTHEASTERN, PA
◆ LEHIGH VALLEY, PA

SOUTHEAST
◆ RALEIGH, NC
◆ CHARLOTTE, NC

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◆ BALTIMORE, MD

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◆ SOUTH FLORIDA

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REV	DATE	COMMENT	BY
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2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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8			
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10			
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14			
15			

DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_DETAILS

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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CONNECTICUT LICENSE NO. 21284
NEW HAMPSHIRE LICENSE NO. 10280
MAINE LICENSE NO. 10280
NEW YORK LICENSE NO. 071284-1
FLORIDA LICENSE NO. 85202

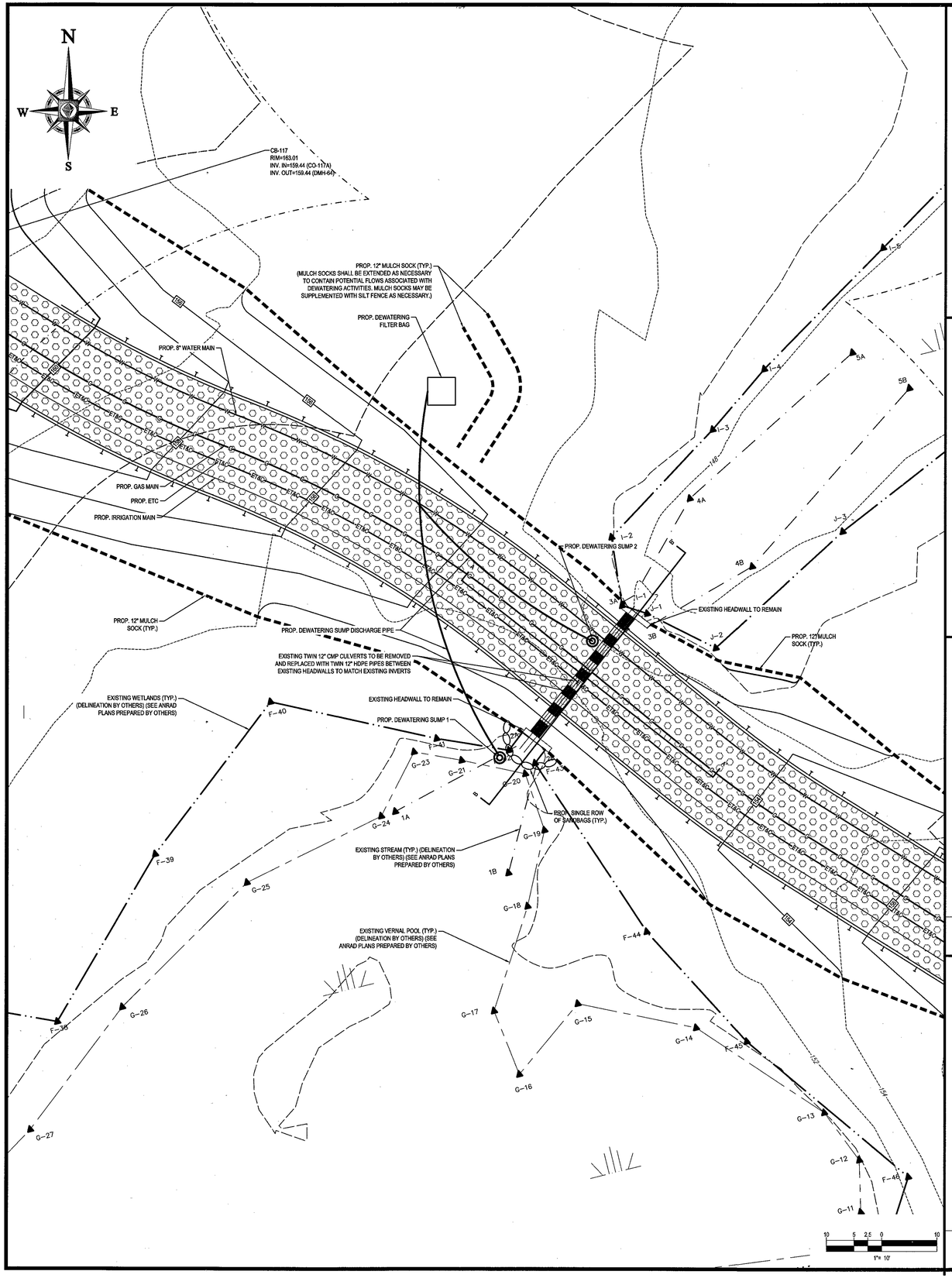
SHEET TITLE:

TYPICAL CROSS SECTIONS

SHEET NUMBER:

75
OF 85

REV 5 - 08/11/2017



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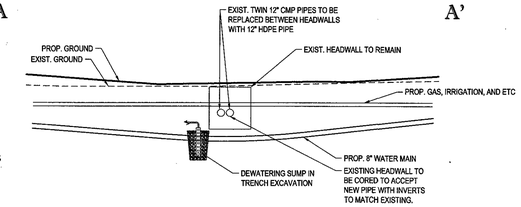
A

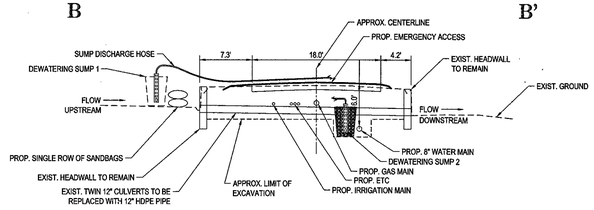


A'

NOTE:
PIPE MATERIALS SHALL MEET H20 LOADING REQUIREMENTS

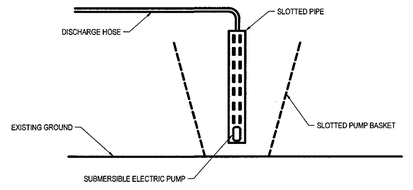
EMERGENCY ACCESS SECTION A-A'

B



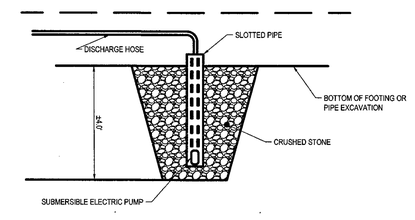
B'

EMERGENCY ACCESS SECTION B-B'



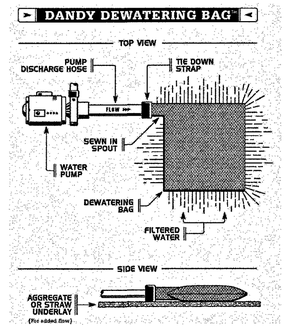
DEWATERING SUMP DETAIL 1

N.T.S.



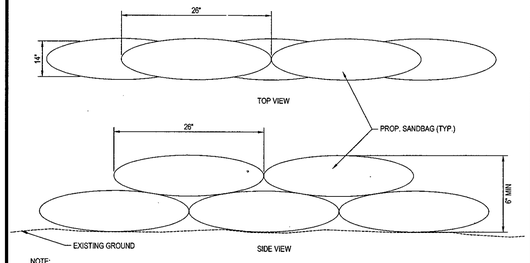
DEWATERING SUMP DETAIL 2

N.T.S.



DEWATERING BAG DETAIL

N.T.S.



NOTE:
CONTRACTOR SHALL COORDINATE PLACEMENT WITH CONSERVATION COMMISSION AND/OR AUTHORIZED REPRESENTATIVE AND OWNER OF RECORD.

SANDBAG DETAIL

N.T.S.

BOHLER ENGINEERING
LAND SURVEYING SITE CIVIL AND CONSULTING ENGINEERING LANDSCAPE ARCHITECTURE
PROGRAM MANAGEMENT PERMITTING SERVICES TRANSPORTATION SERVICES
SUSTAINABLE DESIGN
UPSTATE NEW YORK · NEW ENGLAND · EASTON, MA · NEW YORK METRO · NEW JERSEY · NY · NEW JERSEY
NORTHERN VIRGINIA · CENTRAL VIRGINIA · RALEIGH, NC · CHARLOTTE, NC · RICHMOND, VA · SOUTHERN MD · SOUTHERN MARYLAND · SOUTH FLORIDA
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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD I.D.:	W161041_SS5_DETAILS CROSSING

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
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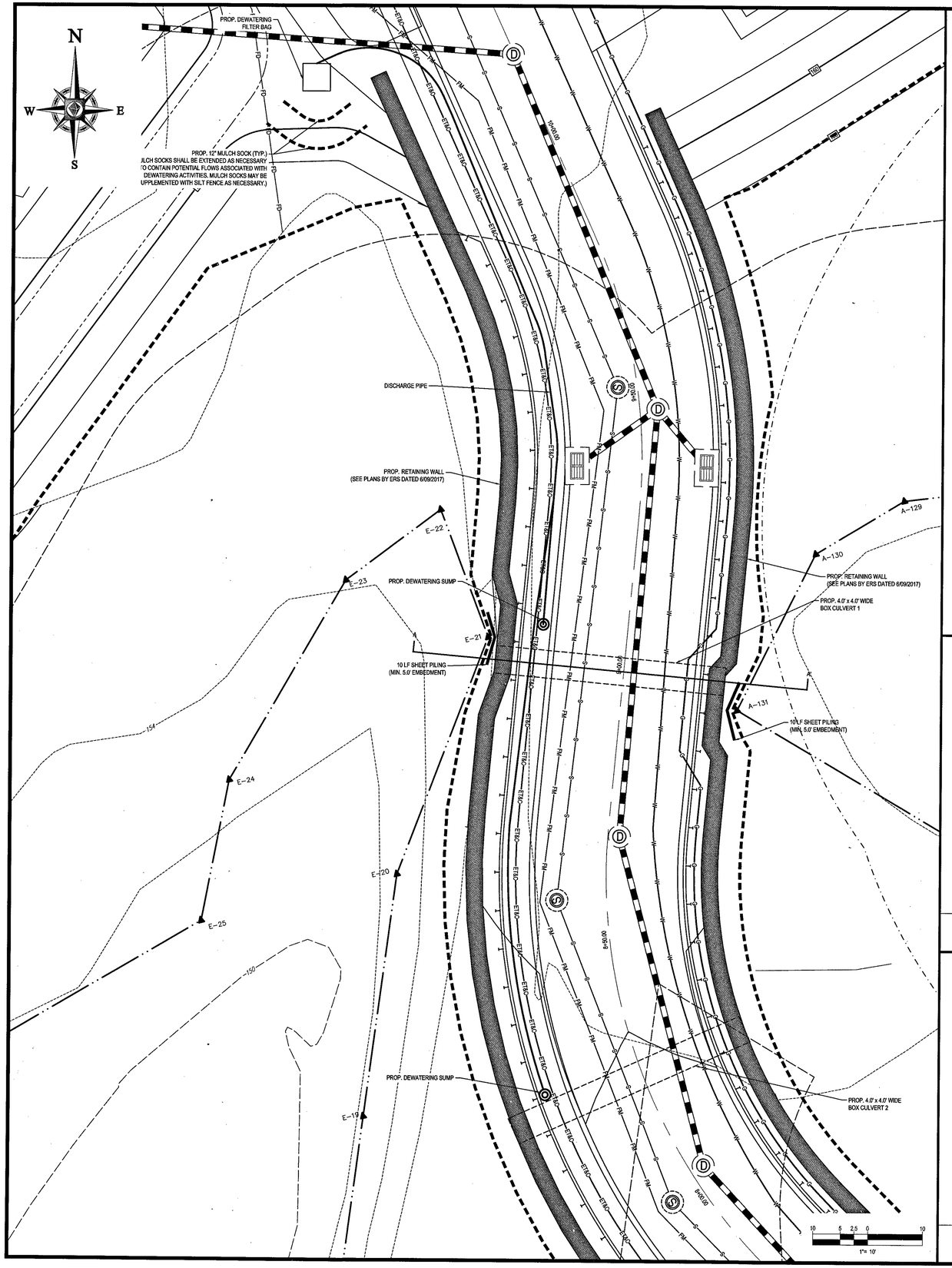
MAINE LICENSE NO. 2020
NEW YORK LICENSE No. 071284-1
FLORIDA LICENSE No. 86202

SHEET TITLE:
CROSS SECTION DETAIL EMERGENCY ACCESS

SHEET NUMBER:
76
OF 85

REV 5 - 08/11/2017



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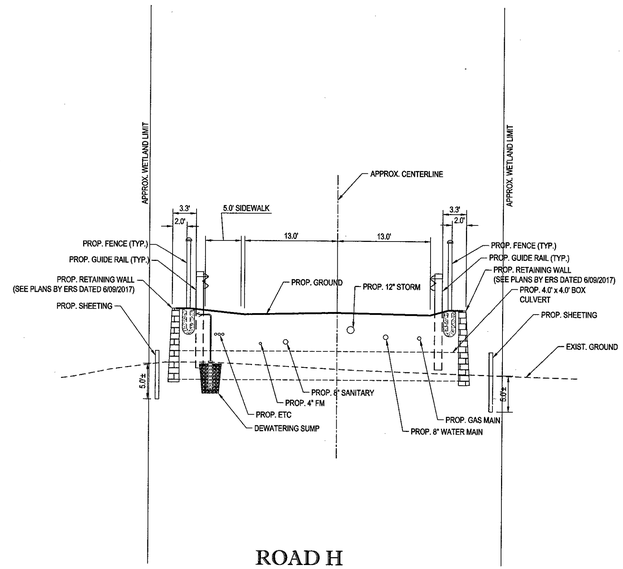
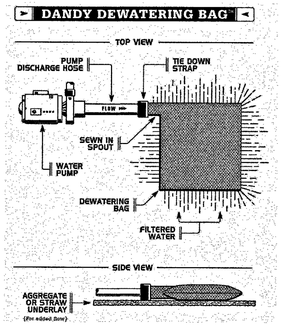
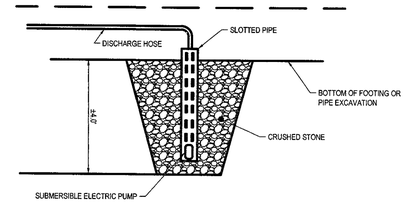


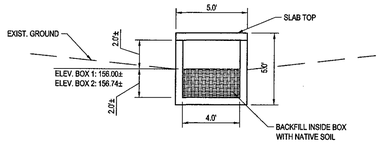
ROAD H
SECTION A-A'



DEWATERING BAG DETAIL — N.T.S.



DEWATERING SUMP DETAIL — N.T.S.



BOX CULVERT DETAIL — N.T.S.

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

- UPSTATE NEW YORK
- LONG ISLAND
- BOSTON, MA
- SOUTHEASTERN, PA
- NEW YORK METRO
- NEW JERSEY
- PHILADELPHIA, PA
- CENTRAL VIRGINIA
- RALEIGH, NC
- CHARLOTTE, NC
- TAMPA, FL
- SOUTH FLORIDA
- NORTHERN VIRGINIA

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4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
6			
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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.:W161041_SS5_DETAILS CROSSING

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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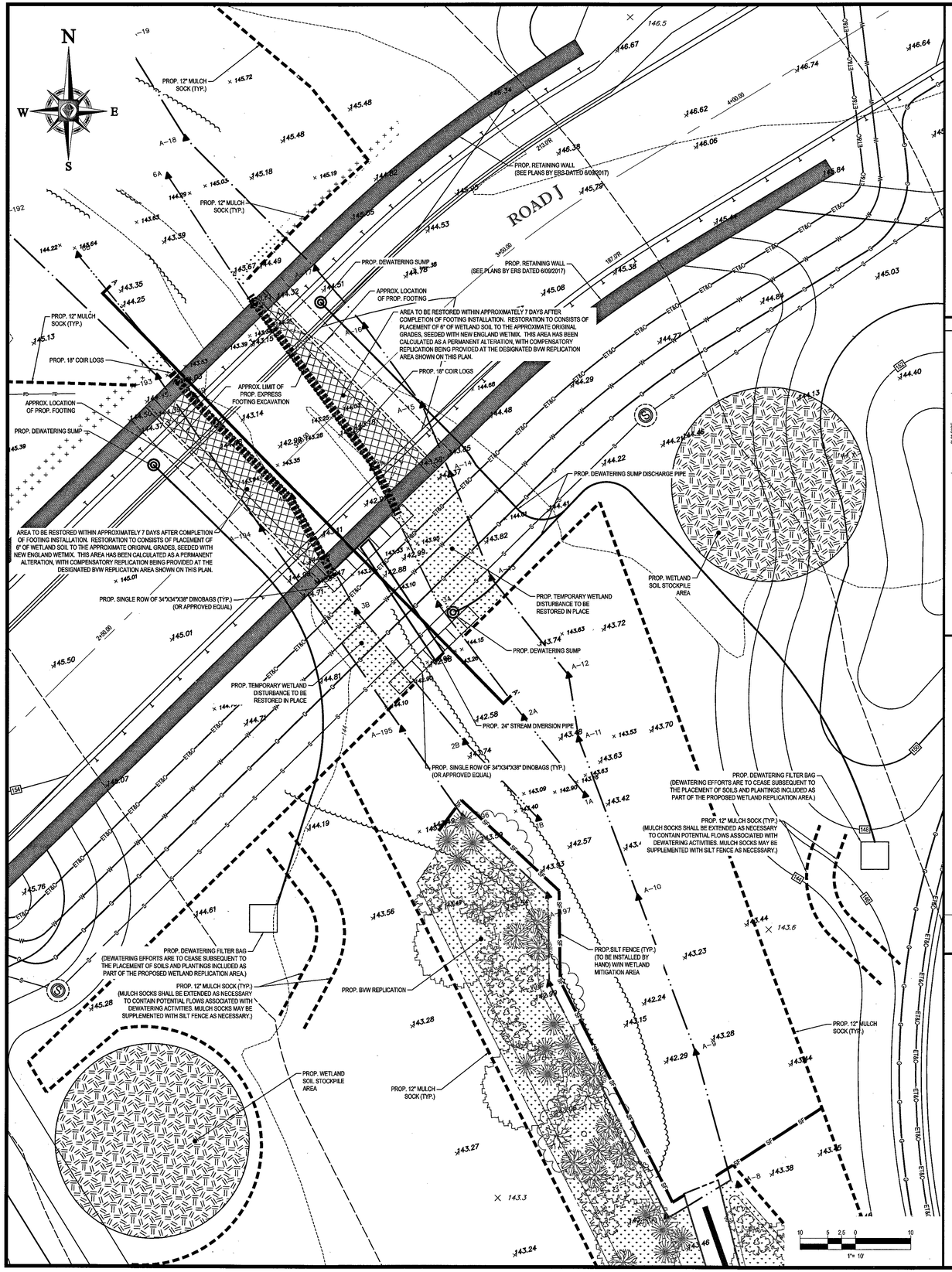
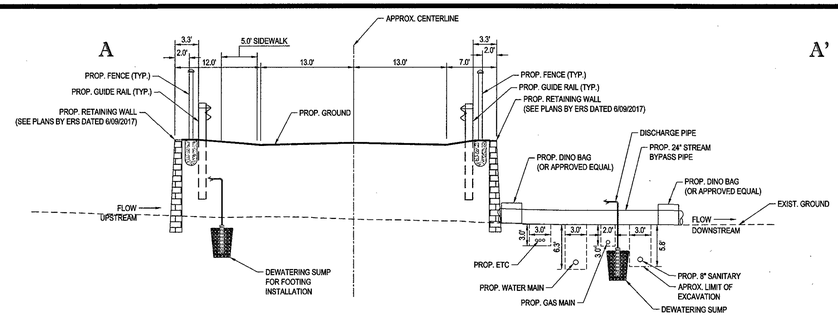
FLORIDA LICENSE NO. 66202

SHEET TITLE:
CROSS SECTION DETAIL ROAD H

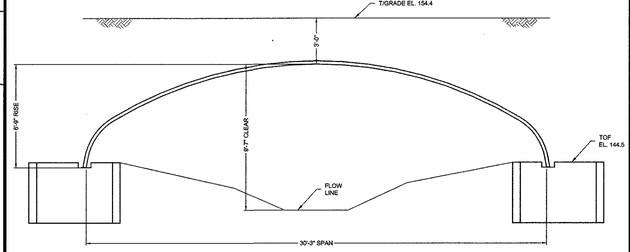
SHEET NUMBER:
77
OF 85

REV 5 - 08/11/2017





ROAD J SECTION A-A'

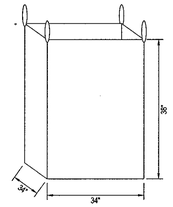


ROAD J CULVERT SECTION

Approximate Area: 161 sq. ft. used, 156 sq. ft. total

NOTES
- MEASUREMENTS ARE TO THE INSIDE CRESTS OF THE CORRUGATION
- DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES

NOTE:
DETAIL FOR GRAPHICAL PURPOSES ONLY, REFER TO PLANS BY OTHERS



DINOBAG DETAIL

N.T.S.

DEWATERING BAG DETAIL

N.T.S.

NOTES:
CONSTRUCTION TO BE PERFORMED IN SEPARATE STAGES DUE TO DIFFERENT DEWATERING REQUIREMENTS.

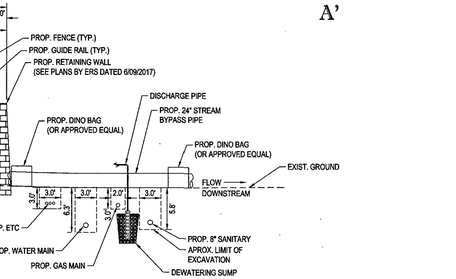
STAGE 1: CONSTRUCT UNDERGROUND UTILITIES BENEATH STREAM BED.

STAGE 2: INSTALL AND BACKFILL EXPRESS FOOTINGS.

STAGE 1 AND STAGE 2 ARE INTERCHANGEABLE

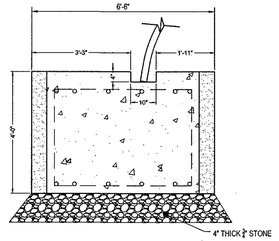
DEWATERING EFFORTS ARE TO CEASE SUBSEQUENT TO THE PLACEMENT OF SOILS AND PLANTINGS INCLUDED AS PART OF THE PROPOSED WETLAND REPLICATION AREA.

CONTRACTOR SHALL MAKE PROVISIONS TO HAVE ADDITIONAL EROSION CONTROL SUPPLIES AVAILABLE AND STAGED PROXIMATE TO THE CROSSING AREA FOR THE ROAD J CROSSING. SAID MATERIALS SHALL INCLUDE, BUT ARE NOT LIMITED TO, SILT FENCE, MULCH SOCK, AND COIR LOGS.



DEWATERING SUMP DETAIL

N.T.S.



EXPRESS FOOTING DETAIL

NOTES:
- FOOTING DIMENSIONS PER GEOTECHNICAL REPORT
- FOUNDATION REINFORCING TO BE SHOWN IN FABRICATION DRAWING
- DETAIL FOR GRAPHICAL PURPOSES ONLY, REFER TO PLANS BY OTHERS

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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

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DRAWN BY: JT
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DATE: 11/18/2016
SCALE: AS NOTED
CAD I.D.:W161041_SS5_DETAILS CROSSING

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SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
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SHEET TITLE:
CROSS SECTION DETAIL ROAD J

SHEET NUMBER:
78
OF 85

REV 5 - 08/11/2017

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REFER TO SITE DEVELOPMENT PLANS FOR ADDITIONAL INFORMATION RELATIVE TO PROPOSED SITE IMPROVEMENTS

PROPOSED LIMIT OF WORK

REFER TO SHEET 81 FOR DETAILS

REFER TO SHEET 79 FOR DETAILS

REFER TO SHEET 77 FOR DETAILS

ORCHARD STREET

1" = 100'

811 Know what's below. Call before you dig.

P:\16\W16104\Drawings\Plan Set\Residential\RFV\W16104_ss5_Pump Station Extension.dwg, 79, 10/6/2014, 4:26:00 PM, jtso, Xerox5510-1-pc3, Use\r034, 1:1

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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
FILE NAME:	W161041_SS5_PUMP STATION EXTENSION

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
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TOWN OF MILLIS
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SHEET TITLE:

SANITARY SEWER KEY PLAN

SHEET NUMBER:

79

OF 85

REV 5 - 08/11/2017

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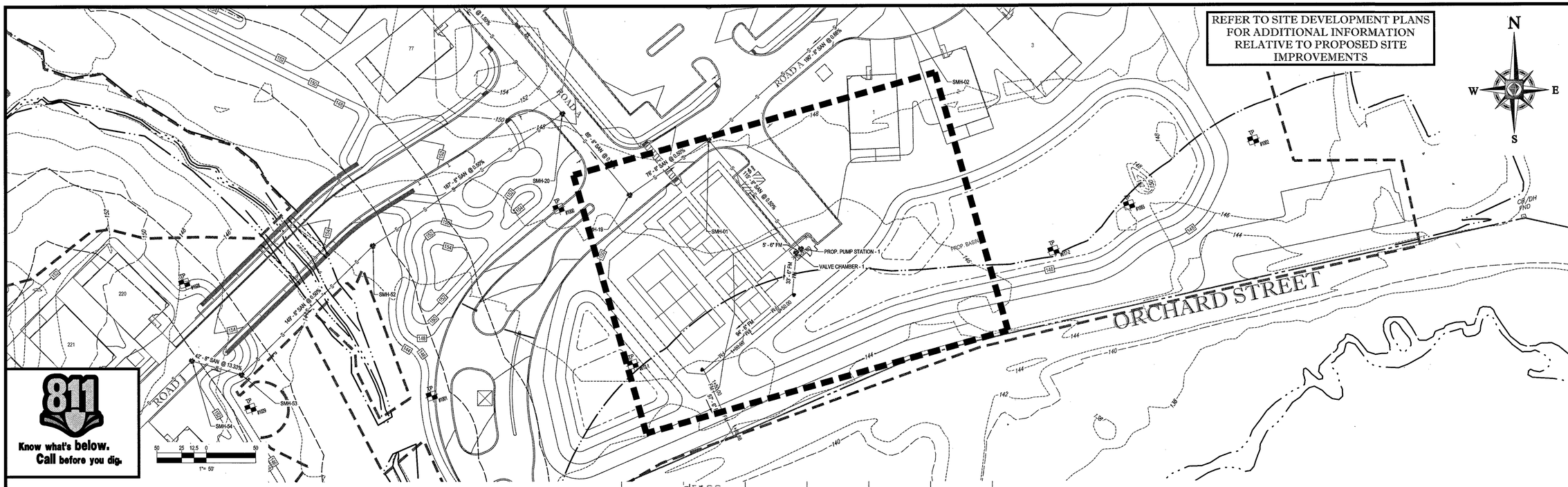

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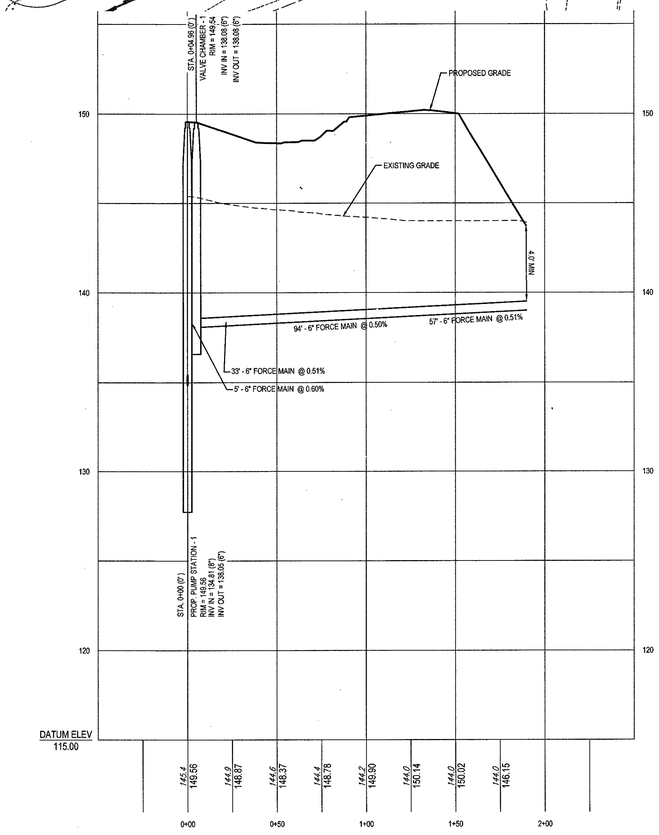

FM - 1 - (4)
SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL

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DEFINITIVE SET

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SCALE: AS NOTED
W161041_SS5_PUMP STATION EXTENSION

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FOR
Toll Brothers

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MAP# 05, LOT# 35
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SHEET TITLE:
FORCE MAIN 1 PLAN AND PROFILE

SHEET NUMBER:
80
OF 85

REV 5 - 08/11/2017

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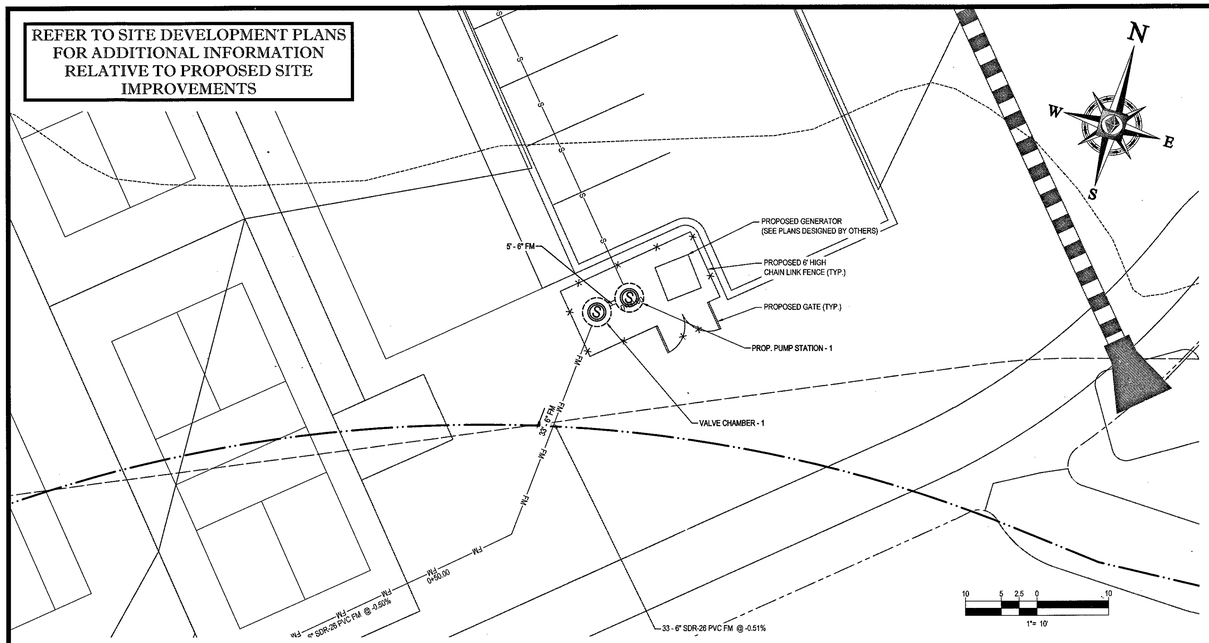

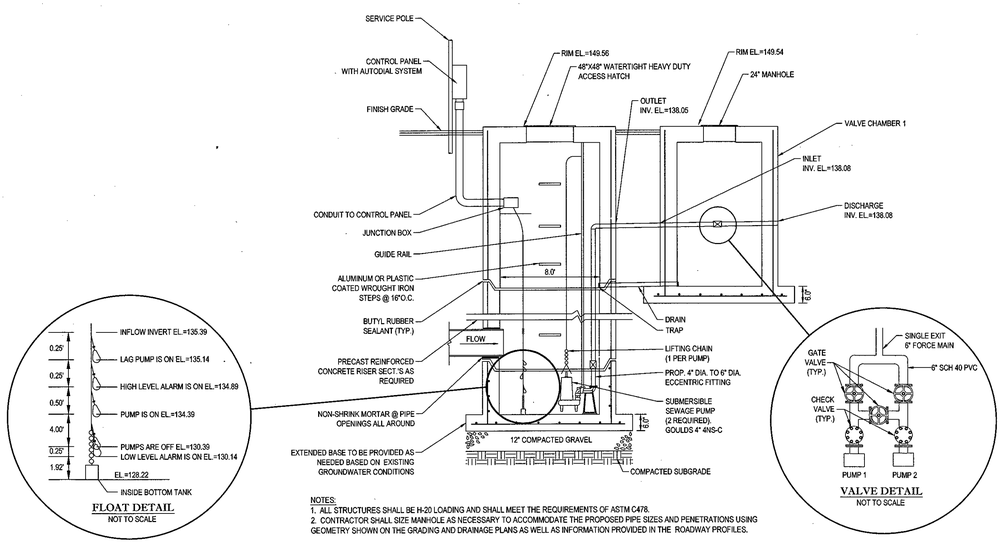

NOTES:
1. ALL STRUCTURES SHALL BE H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
2. CONTRACTOR SHALL SIZE MANHOLE AS NECESSARY TO ACCOMMODATE THE PROPOSED PIPE SIZES AND PENETRATIONS USING GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS AS WELL AS INFORMATION PROVIDED IN THE ROADWAY PROFILES.

PUMP STATION 1 DETAIL

811 Know what's below. Call before you dig.

PUMP CHAMBER SYSTEM NOTES:

1. ALL ENTRIES FOR PUMP CHAMBER SHALL BE KORN SEAL OR EQUIVALENT.
2. DESIGN OPERATING VOLUME TO CLEAR THE VOLUME OF THE FORCE MAIN ON EACH PUMP CYCLE.
3. PUMP STATION ACCESS HATCH CENTERED OVER PUMPS TO BE A WATERTIGHT STAINLESS STEEL H-20, 48" SQUARE AS NOTED. INLET HATCH SHALL BE CENTERED OVER INLET PIPES AND WATERTIGHT STAINLESS STEEL H-20, 30" SQUARE AS NOTED. BOTH HATCHES SHALL BE SUPPORTED ON A PRE-CAST CONCRETE RISER DESIGNED TO ACCOMMODATE STAINLESS STEEL H-20 HATCHES. OPENINGS IN TOP OF PUMP CHAMBER SHALL MATCH THE HATCH DIMENSIONS.
4. A VENT SHALL BE LOCATED THROUGH THE TOP OF THE PUMP CHAMBER OR ALTERNATIVELY THROUGH THE PRECAST HATCH RISER. VENT PIPING SHALL BE SHOWN TO A LOCATION WHERE A CHARCOAL FILTER MAY BE LOCATED. IF NECESSARY, THE CHARCOAL FILTER WILL BE PROTECTED BY BOLLARDS.
5. AN AUDIBLE HORN, RED FLASHING LIGHT AND EMERGENCY CONTACT SIGN MOUNTED NEXT TO THE LIGHT SHALL BE FURNISHED TO PROVIDE NOTIFICATION OF PUMP STATION FAILURE AND PROVIDE AN EMERGENCY CONTACT NUMBER IF HORN/LIGHT ARE SOUNDING/VISIBLE. SUCH EQUIPMENT SHALL BE IDENTICAL TO THOSE USED ON OTHER TOWN OF MILLIS DPW PUMP STATIONS EXCEPT DIFFERENT CONTACT NUMBERS.
6. AN "AUTO DIALER" SHALL BE PROVIDED WITH THE STATION CONTROLS WHICH WILL NOTIFY A MANNED 24/7 LOCATION FOR EMERGENCY RESPONSE. DIALER SHALL PROVIDE PRIMARY AND BACKUP RESPONSE CALLS AND DIAL OUT TO FIRE DISPATCH IF ALL RESPONSES FAIL.
7. PUMPS SHALL ALTERNATE AND A RUN TIME METER SHALL BE INSTALLED IN THE CONTROL PANEL FOR EACH PUMP. EACH PUMP AND ALARM SHALL BE ON SEPARATE CIRCUITS.
8. SEWER PUMP SYSTEM VENDOR MAINTENANCE CONTRACT TO BE PROVIDED PRIOR TO TESTING AND ACTIVATING PUMP SYSTEM. WATER TIGHT TESTING, MANDREL TESTING AND VACUUM TESTING OF ALL SYSTEM COMPONENTS INCLUDING PUMP CHAMBER SHALL BE ACCORDING TO THE TOWN OF MILLIS DPW REGULATIONS. CONTRACTOR SHALL TEST FORCE MAIN PIPE IN THE PRESENCE OF AN ENGINEER USING A HYDROSTATIC TEST OF AT LEAST 1.5 TIMES THE SHUTOFF HEAD OF THE CONNECTED PUMPS OR 150 PSI, WHICHEVER IS GREATER. LOSS OF WATER PRESSURE DURING TEST SHALL NOT EXCEED 5 PSI IN A 2-HOUR PERIOD. ANY DEFECTIVE WORK SHOWN BY THIS TEST SHALL BE REPLACED ENTIRELY AT THE CONTRACTOR'S EXPENSE.
9. ALL INTERIOR PIPING AND HARDWARE SHALL BE STAINLESS STEEL.
10. SHOP DRAWINGS OF THE PUMP CHAMBER AND ALL PUMP EQUIPMENT TO BE APPROVED BY DPW AFTER REVIEW BY THE DESIGN ENGINEER.
11. CONTRACTOR SHALL PROVIDE TRAINING AND START UP SERVICES BY MANUFACTURER'S REP FOR PUMP STATION. START UP SERVICES SHALL INCLUDE INSTRUCTION AND DEMONSTRATION INCLUDING OPERATION WITH BACKUP POWER USING PORTABLE GENERATOR. SEWER PUMP SYSTEM O&M MANUAL TO BE PROVIDED AND REVIEWED BY DPW AND SHALL INCLUDE EMERGENCY CONTACTS AND MAINTENANCE VENDOR.
12. PUMP INSTALLATION, POWER FEED, ALARMS AND PUMP CONTROL PANEL TO BE INSTALLED BY A QUALIFIED LICENSED ELECTRICIAN.
13. CONTROL PANEL SHALL HAVE AN OUTLET WIRED TO ALLOW CONNECTION OF AN EMERGENCY GENERATOR WITH SUITABLE CAPABILITY TO ISOLATE THE CONTROL PANEL WHILE POWERED BY BACK UP GENERATOR.
14. A SEPARATE AS-BUILT SHALL BE PROVIDED TO DPW FOR THE SEWER PUMP STATION.
15. BOTH PUMPS MUST BE EQUIPPED WITH AN ALARM LOCATED IN THE BUILDING SERVED WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS. PUMPS SHALL BE CAPABLE OF PASSING A MINIMUM SOLID SIZE OF 1 1/4 INCH DIAMETER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
16. THE SUBMERSIBLE PUMPS SHALL BE INSTALLED WITH A HYDRAULICALLY SEALED SLIDE COUPLING ARRANGEMENT SO THAT THE PUMPS CAN BE REMOVED FROM THE PUMP CHAMBER FOR SERVICE AND INSPECTION AND THEN RETURNED TO SERVICE WITHOUT ENTERING THE PUMP CHAMBER TO UNBOLT OR UNLOCK THE CONNECTION BETWEEN THE PUMP AND PIPING.
17. DUPLEX PUMP CONTROLS SHALL BE PROVIDED IN THE PUMP CONTROL PANEL LOCATION WITHIN THE BUILDING AND CONTAINED IN WEATHER PROOF NEMA ENCLOSURE.
18. EACH SUBMERSIBLE PUMP SHALL BE EQUIPPED WITH 25 FEET OF POWER CABLE WITH EPOXY SEALED HOUSING WITH SECONDARY PRESSURE GROMMET FOR SEALING AND STRAIN RELIEF. ALL INCOMING LEAD WIRES SHALL BE SPLICED IN THE MOTOR TERMINAL HOUSING.
19. THE CONTRACTOR SHALL FURNISH AND INSTALL FIVE (5) MERCURY LIQUID LEVEL SENSORS WITH SUFFICIENT LENGTH OF CABLE FOR EACH PUMP STATION. SUSPENDED TYPE OF LEVEL SENSORS SHALL BE MERCURY TYPE PILOT DUTY DEVICES MOUNTED IN A CORROSION RESISTANT POLYPROPYLENE HOUSING, AND MOUNTED TO TANK INTERIOR BY A DETACHABLE BRACKET TO BE EASILY ACCESSIBLE FROM THE EXISTING MANWAYS.
20. THE PUMP MOTORS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AND SHALL BE FITTED WITH HOUR METERS THAT ARE RECORDED WITHIN THE PUMP PANEL.

PUMP CHAMBER SYSTEM:

PUMP REQUIREMENTS: TOTAL DYNAMIC HEAD= 103.2 FT @ 280 GPM

PUMP SPECIFICATIONS: USE GOULDS SUBMERSIBLE SEWAGE PUMP MODEL 4NS-C 25 HP, 3 PHASE, 60 HZ, WITH 10.38" IMPELLER OR APPROVED EQUAL.

BOTH PUMPS MUST BE EQUIPPED WITH AN ALARM LOCATED IN THE CONTROL PANEL WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS. PUMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

DESIGN CALCULATIONS

DESIGN FLOW CALCS:		
UNITS SERVED		**227.00 2 BED UNITS**
ESTIMATED SEWAGE GENERATION		**97.00 3 BED UNITS**
(ASSUME 70% 2 BEDROOM @ 150 GPD AND 30% 3 BEDROOM @ 330 GPD)		**150.00 GPD-2 BED UNIT**
ESTIMATED SEWAGE GENERATION		**330.00 GPD-3 BED UNIT**
DESIGN FLOW		**66060.00 GPD**
WET WEATHER FLOW ADJUSTMENT:		
INFILTRATION ESTIMATE		
(GPD PER INCH DIAMETER OF PIPE PER MILE OF PIPE)		**250.00 GPD/IN/MILE**
DIAMETER OF PROPOSED PIPE		**8.00 IN**
TOTAL LENGTH OF NEW SEWER PIPE		**2.51 MI**
WET WEATHER FLOWS		**5026.52 GPD**
RESERVE CAPACITY		**8293.00 GPD**
TOTAL WET WEATHER FLOWS		**79379.52 GPD**
(INCLUSIVE OF DESIGN SANITARY FLOWS)		**55.12 GPM**
PEAKING FACTOR		**6.00**
PEAKING FACTOR DESIGN FLOW		**396360.00 GPD**
		275.25 GPM
DOSE VOLUME	=	**1504 GAL**
PUMP RUNNING TIME PER CYCLE	=	**5.4 MIN.**
PUMP RUNNING TIME (LAG PUMP)	=	**5.5 MIN.**
PUMP DISCHARGE RATE	=	**280 GPM**
PUMP SWITCHING DESIGN:		
DOSE VOLUME 1504.04 GALLONS 201.54 CUBIC FEET		
RADIUS 4.00 FT. (INSIDE DIMENSION)		
WIDTH N/A FT (INSIDE DIMENSION)		
HEIGHT 4.00 FT (FOR DOSE VOLUME)		
INLET INVERT ELEVATION	=	135.39
OUTLET INVERT ELEVATION	=	**142.27**
DOSES PER DAY	=	133.05 **DOSES**
STANDING WATER LEVEL IN CHAMBER	=	2.17 **FT**
ELEVATION OF TANK BOTTOM	=	**128.22**
L1= ELEVATION OF ALL PUMPS OFF	=	**130.39**
L2= ELEVATION OF LEAD PUMP ON	=	**134.39**
L3= ELEVATION OF ALARM ON	=	**134.89**
L4=ELEVATION OF LAG PUMP ON	=	**135.14**
L2-L1	=	**4.00 FT**
DESTINATION INVERT ELEVATION	=	192.30 **FT**

FRICTION LOSSES:		
COEFFICIENT C	=	130.00 **FOR Ductile Iron**
DELIVERY PIPE LENGTH 6 INCH	=	5692.00 **FT.**
FRICTION LOSS IN DELIVERY PIPE PER 100 FT	=	0.71 **FT/100 FT**
EQUIVALENT LENGTH OF PIPE FOR FITTINGS & VALVES		
NO. EQ. LENGTH		
ENLARGEMENT **0.0** **0.0**	=	**0.00 FT**
CONTRACTION **0.0** **0.0**	=	**0.00 FT**
CHECK VALVE **1.0** **33.6**	=	**33.60 FT**
ELBOWS 90 **5.0** **10.1**	=	**50.50 FT**
ELBOWS 45 **5.0** **5.4**	=	**27.00 FT**
BALL VALVE **0.0** **3.8**	=	**0.00 FT**
EQUIVALENT LENGTH FROM FITTINGS	=	111.10 **FT.**
TOTAL EQUIVALENT LENGTH OF PIPE	=	5803.10 **FT.**
TOTAL HEAD LOSS FROM DELIVERY PIPE & FITTINGS	=	41.05 **FT**
MANIFOLD & LATERAL LOSSES = (1.31 X DISTILL PRESSURE)	=	0.00 **FT.**
TOTAL SYSTEM FRICTION HEAD LOSS	=	41.05 **FT**
STATIC HEAD	=	**61.91 FT**
TOTAL DYNAMIC HEAD = STATIC + FRICTION TDH	=	102.96 **FT**

TDH (ft)	102.96 ft
Flow (GPM)	280 gpm
Pump Duration	5.4 min
Volume per cycle	1504 Gallons
Velocity	3.18 ft/sec **GOOD**

REFER TO GENERAL NOTES SHEET FOR GRADING & UTILITY NOTES

NOTE:
CONTRACTOR SHALL PERFORM THE REQUISITE TESTING TO THE SATISFACTION OF THE TOWN OF MILLIS AND STATE, AS APPROPRIATE, UPON COMPLETION OF THE SANITARY SEWER SYSTEM.

NOTE:
PROPOSED LOCATION OF UNDERGROUND ELECTRIC CONDUIT AND ALARM PANEL FOR PUMP CHAMBER TO BE COORDINATED WITH OWNER OR OWNERS REPRESENTATIVE AND ENGINEER. COORDINATE ELECTRICAL REQUIREMENTS/ADEQUACY OF CIRCUITS AND CONNECTION LOCATIONS FOR ALARMS WITH ARCHITECT AND ENGINEER.

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REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.:	W161041
DRAWN BY:	JT
CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
G:\W161041_SS5_PUMP STATION EXTENSION	

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER ENGINEERING
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FLORIDA LICENSE No. 66202

SHEET TITLE:
PUMP STATION 1 PLAN AND DETAILS

SHEET NUMBER:
81
OF 85

REV 5 - 08/11/2017

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REFER TO SITE DEVELOPMENT PLANS FOR ADDITIONAL INFORMATION RELATIVE TO PROPOSED SITE IMPROVEMENTS

811 Know what's below. Call before you dig.

1"= 50'

PROFILE

DATUM ELEV 140.00

STA: 0+00.27 (0')
VALVE CHAMBER - 2
RIM = 164.00
INV IN = 158.00 (4")
INV OUT = 158.00 (4")

STA: 0+00 (0')
PROP. PUMP STATION - 2
RIM = 162.00
INV IN = 157.46 (8")
INV IN = 157.33 (8")
INV OUT = 157.46 (4")

PROPOSED GRADE

EXISTING GRADE

6' - 4" FORCE MAIN @ 0.64%

61' - 4" FORCE MAIN @ 0.13%

90' - 4" FORCE MAIN @ 0.63%

60' - 4" FORCE MAIN @ 0.67%

90' - 4" FORCE MAIN @ 1.50%

85' - 4" FORCE MAIN @ 5.88%

125' - 4" FORCE MAIN @ 0.50%

132' - 4" FORCE MAIN @ 0.50%

165' - 4" FORCE MAIN @ 0.50%

53' - 4" FORCE MAIN @ 0.28%

1.0' MIN

STA: 9+30.15 (0')
PROP. MH#1
RIM 183.69
INV IN 174.85 (4")
INV OUT 174.69 (8")

157.4	157.0	156.6	156.2	155.8	155.6	155.5	155.7	155.9	156.0	156.6	157.3	157.7	158.7	159.9	161.4	163.1	165.7	167.4	168.8	169.8	169.8	169.0	169.0	169.1	169.3	169.3	169.9	170.4	170.8	172.6	173.8	177.8	181.5	181.3	179.9	173.8	169.0
164.00	164.01	163.38	163.07	162.76	162.66	162.68	162.89	163.22	163.62	164.12	164.65	165.37	166.21	167.21	168.36	169.59	170.94	172.44	174.06	175.76	177.47	178.93	178.59	178.97	180.02	180.11	180.79	181.27	181.85	182.44	182.98	183.34	183.49	183.45	183.22	182.81	182.21	181.43

0+00 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50 7+00 7+50 8+00 8+50 9+00 9+50 10+00

180 170 160 150

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DEFINITIVE SET

PROJECT No.: W161041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
CWDD#41_SS5_PUMP STATION EXTENSION

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
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SHEET TITLE:
FORCE MAIN 2 PLAN AND PROFILE

SHEET NUMBER:
82
OF 85

REV 5 - 08/11/2017

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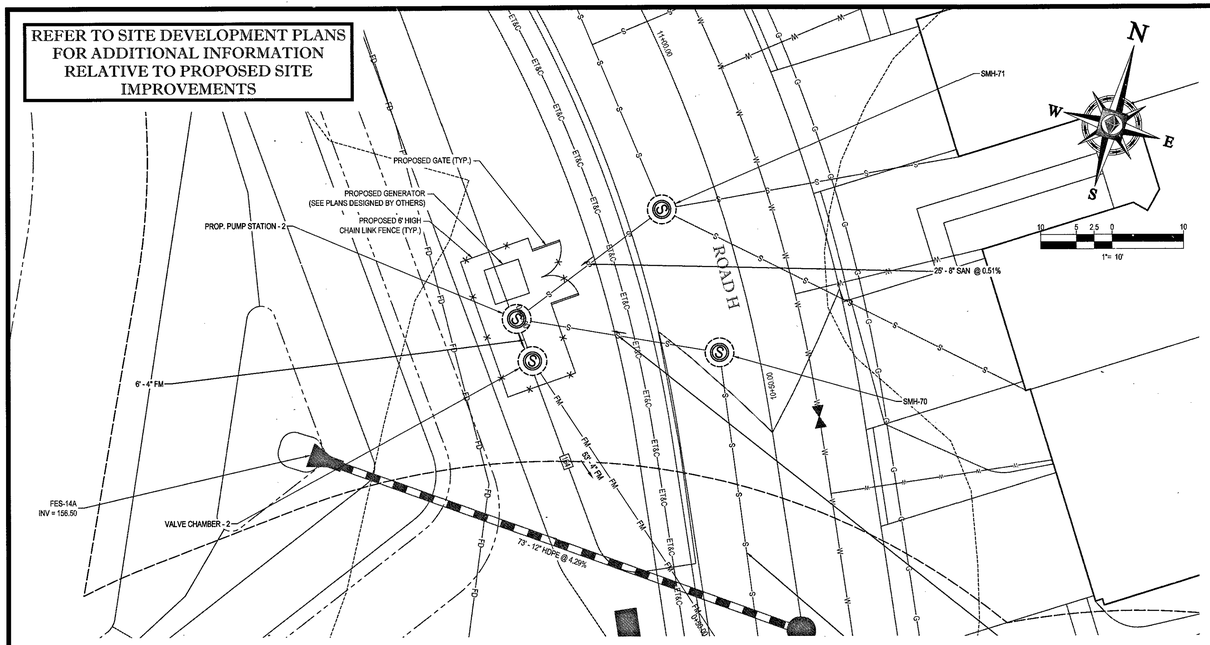

NOTES:
1. ALL STRUCTURES SHALL BE H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
2. CONTRACTOR SHALL SIZE MANHOLE AS NECESSARY TO ACCOMMODATE THE PROPOSED PIPE SIZES AND PENETRATIONS USING GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS AS WELL AS INFORMATION PROVIDED IN THE ROADWAY PROFILES.

PUMP STATION 2 DETAIL

PUMP CHAMBER SYSTEM NOTES:

1. ALL ENTRIES FOR PUMP CHAMBER SHALL BE KORN SEAL OR EQUIVALENT.
2. DESIGN OPERATING VOLUME TO CLEAR THE VOLUME OF THE FORCE MAIN ON EACH PUMP CYCLE.
3. PUMP STATION ACCESS HATCH CENTERED OVER PUMPS TO BE A WATERTIGHT STAINLESS STEEL H-20, 48" SQUARE AS NOTED. INLET HATCH SHALL BE CENTERED OVER INLET PIPES AND WATERTIGHT STAINLESS STEEL H-20, 36" SQUARE AS NOTED. BOTH HATCHES SHALL BE SUPPORTED ON A PRE-CAST CONCRETE RISER DESIGNED TO ACCOMMODATE STAINLESS STEEL H-20 HATCHES. OPENINGS IN TOP OF PUMP CHAMBER SHALL MATCH THE HATCH DIMENSIONS.
4. A VENT SHALL BE LOCATED THROUGH THE TOP OF THE PUMP CHAMBER OR ALTERNATIVELY THROUGH THE PRECAST HATCH RISER. VENT PIPING SHALL BE SHOWN TO A LOCATION WHERE A CHARCOAL FILTER MAY BE LOCATED. IF NECESSARY, THE CHARCOAL FILTER WILL BE PROTECTED BY BOLLARDS.
5. AN AUDIBLE HORN, RED FLASHING LIGHT AND EMERGENCY CONTACT SIGN MOUNTED NEXT TO THE LIGHT SHALL BE FURNISHED TO PROVIDE NOTIFICATION OF PUMP STATION FAILURE AND PROVIDE AN EMERGENCY CONTACT NUMBER IF HORN/LIGHT ARE SOUNDING/VISIBLE. SUCH EQUIPMENT SHALL BE IDENTICAL TO THOSE USED ON OTHER TOWN OF MILLIS DPW PUMP STATIONS EXCEPT DIFFERENT CONTACT NUMBERS.
6. AN "AUTO DIALER" SHALL BE PROVIDED WITH THE STATION CONTROLS WHICH WILL NOTIFY A MANNED 24/7 LOCATION FOR EMERGENCY RESPONSE. DIALER SHALL PROVIDE PRIMARY AND BACKUP RESPONSE CALLS AND DIAL OUT TO FIRE DISPATCH IF ALL RESPONSES FAIL.
7. PUMPS SHALL ALTERNATE AND A RUN TIME METER SHALL BE INSTALLED IN THE CONTROL PANEL FOR EACH PUMP. EACH PUMP AND ALARM SHALL BE ON SEPARATE CIRCUITS.
8. SEWER PUMP SYSTEM VENDOR MAINTENANCE CONTRACT TO BE PROVIDED PRIOR TO TESTING AND ACTIVATING PUMP SYSTEM. WATER TIGHT TESTING, MANDREL TESTING AND VACUUM TESTING OF ALL SYSTEM COMPONENTS INCLUDING PUMP CHAMBER SHALL BE ACCORDING TO THE TOWN OF MILLIS DPW REGULATIONS. CONTRACTOR SHALL TEST FORCE MAIN PIPE IN THE PRESENCE OF AN ENGINEER USING A HYDROSTATIC TEST OF AT LEAST 1.5 TIMES THE SHUTOFF HEAD OF THE CONNECTED PUMPS OR 150 PSI, WHICHEVER IS GREATER. LOSS OF WATER PRESSURE DURING TEST SHALL NOT EXCEED 5 PSI IN A 2-HOUR PERIOD. ANY DEFECTIVE WORK SHOWN BY THIS TEST SHALL BE REPLACED ENTIRELY AT THE CONTRACTOR'S EXPENSE.
9. ALL INTERIOR PIPING AND HARDWARE SHALL BE STAINLESS STEEL.
10. SHOP DRAWINGS OF THE PUMP CHAMBER AND ALL PUMP EQUIPMENT TO BE APPROVED BY DPW AFTER REVIEW BY THE DESIGN ENGINEER.
11. CONTRACTOR SHALL PROVIDE TRAINING AND START UP SERVICES BY MANUFACTURER'S REP FOR PUMP STATION. START UP SERVICES SHALL INCLUDE INSTRUCTION AND DEMONSTRATION INCLUDING OPERATION WITH BACKUP POWER USING PORTABLE GENERATOR. SEWER PUMP SYSTEM O&M MANUAL TO BE PROVIDED AND REVIEWED BY DPW AND SHALL INCLUDE EMERGENCY CONTACTS AND MAINTENANCE VENDOR.
12. PUMP INSTALLATION, POWER FEED, ALARMS AND PUMP CONTROL PANEL TO BE INSTALLED BY A QUALIFIED LICENSED ELECTRICIAN.
13. CONTROL PANEL SHALL HAVE AN OUTLET WIRED TO ALLOW CONNECTION OF AN EMERGENCY GENERATOR WITH SUITABLE CAPABILITY TO ISOLATE THE CONTROL PANEL WHILE POWERED BY BACK UP GENERATOR.
14. A SEPARATE AS-BUILT SHALL BE PROVIDED TO DPW FOR THE SEWER PUMP STATION.
15. BOTH PUMPS MUST BE EQUIPPED WITH AN ALARM LOCATED IN THE BUILDING SERVED WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS. PUMPS SHALL BE CAPABLE OF PASSING A MINIMUM SOLID SIZE OF 1 1/4 INCH DIAMETER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
16. THE SUBMERSIBLE PUMPS SHALL BE INSTALLED WITH A HYDRAULICALLY SEALED SLIDE COUPLING ARRANGEMENT SO THAT THE PUMPS CAN BE REMOVED FROM THE PUMP CHAMBER FOR SERVICE AND INSPECTION AND THEN RETURNED TO SERVICE WITHOUT ENTERING THE PUMP CHAMBER TO UNBOLT OR UNLOCK THE CONNECTION BETWEEN THE PUMP AND PIPING.
17. DUPLEX PUMP CONTROLS SHALL BE PROVIDED IN THE PUMP CONTROL PANEL LOCATION WITHIN THE BUILDING AND CONTAINED IN WEATHER PROOF NEMA ENCLOSURE.
18. EACH SUBMERSIBLE PUMP SHALL BE EQUIPPED WITH 25 FEET OF POWER CABLE WITH EPOXY SEALED HOUSING WITH SECONDARY PRESSURE GROMMET FOR SEALING AND STRAIN RELIEF. ALL INCOMING LEAD WIRES SHALL BE SPLICED IN THE MOTOR TERMINAL HOUSING.
19. THE CONTRACTOR SHALL FURNISH AND INSTALL FIVE (5) MERCURY LIQUID LEVEL SENSORS WITH SUFFICIENT LENGTH OF CABLE FOR EACH PUMP STATION. SUSPENDED TYPE OF LEVEL SENSORS SHALL BE MERCURY TYPE PILOT DUTY DEVICES MOUNTED IN A CORROSION RESISTANT POLYPROPYLENE HOUSING, AND MOUNTED TO TANK INTERIOR BY A DETACHABLE BRACKET TO BE EASILY ACCESSIBLE FROM THE EXISTING MANWAYS.
20. THE PUMP MOTORS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AND SHALL BE FITTED WITH HOUR METERS THAT ARE RECORDED WITHIN THE PUMP PANEL.

PUMP CHAMBER SYSTEM:

PUMP REQUIREMENTS: TOTAL DYNAMIC HEAD= 39.0 FT @ 170 GPM

PUMP SPECIFICATIONS: USE GOULDS SUBMERSIBLE SEWAGE PUMP MODEL WS20D3 2.0 HP, 3 PHASE, 60 HZ, WITH 7.0" IMPELLER OR APPROVED EQUAL

BOTH PUMPS MUST BE EQUIPPED WITH AN ALARM LOCATED IN THE CONTROL PANEL WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS. PUMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

DESIGN CALCULATIONS

DESIGN FLOW CALCS:		
UNITS SERVED		**74.00 UNITS**
ESTIMATED SEWAGE GENERATION		
(ASSUME 70% 2 BEDROOM @ 150 GPD AND 30% 3 BEDROOM @ 330 GPD)		**204.00 GPD-UNIT**
ESTIMATED SEWAGE GENERATION		
DESIGN FLOW		**15096.00 GPD**
WET WEATHER FLOW ADJUSTMENT:		
INFILTRATION ESTIMATE		
(GPD PER INCH DIAMETER OF PIPE PER MILE OF PIPE)		**250.00 GPD/IN/MILE**
DIAMETER OF PROPOSED PIPE		**8.00 IN**
TOTAL LENGTH OF NEW SEWER PIPE		**0.37 MI**
WET WEATHER FLOWS		**734.85 GPD**
TOTAL WET WEATHER FLOWS		**15830.85 GPD**
(INCLUSIVE OF DESIGN SANITARY FLOWS)		**10.99 GPM**
PEAKING FACTOR		**6.00**
PEAKING FACTOR DESIGN FLOW		**90576.00 GPD**
		62.90 GPM
DOSE VOLUME	=	**1504 GAL**
PUMP RUNNING TIME PER CYCLE	=	**8.8 MIN.**
PUMP RUNNING TIME (LAG PUMP)	=	**9.0 MIN.**
PUMP DISCHARGE RATE	=	**170 GPM**

PUMP SWITCHING DESIGN:

DOSE VOLUME 1504.04 GALLONS 201.54 CUBIC FEET

RADIUS 4.00 FT. (INSIDE DIMENSION)		
WIDTH N/A FT (INSIDE DIMENSION)		
HEIGHT 4.00 FT (FOR DOSE VOLUME)		
INLET INVERT ELEVATION	=	157.46
OUTLET INVERT ELEVATION	=	**157.96**
DOSES PER DAY	=	**80.78 DOSES**
STANDING WATER LEVEL IN CHAMBER	=	2.17 **FT**
ELEVATION OF TANK BOTTOM	=	**150.29**
L1= ELEVATION OF ALL PUMPS OFF	=	**152.46**
L2= ELEVATION OF LEAD PUMP ON	=	**156.46**
L3= ELEVATION OF ALARM ON	=	**156.96**
L4=ELEVATION OF LAG PUMP ON	=	**157.21**
L2-L1	=	**4.00 FT**
DESTINATION INVERT ELEVATION	=	174.56 **FT**

FRICTION LOSSES:

COEFFICIENT	C	=	150.00 **FOR PVC**
DELIVERY PIPE LENGTH	4 INCH	=	970.10 **FT.**
FRICTION LOSS IN DELIVERY PIPE PER 100 FT		=	1.55 **FT/100 FT**

EQUIVALENT LENGTH OF PIPE FOR FITTINGS & VALVES

	NO.	EQ. LENGTH		
ENLARGEMENT	**0.0**	**0.0**	=	**0.00 FT**
CONTRACTION	**0.0**	**0.0**	=	**0.00 FT**
CHECK VALVE	**1.0**	**33.6**	=	**33.60 FT**
ELBOWS 90	**5.0**	**10.1**	=	**50.50 FT**
ELBOWS 45	**5.0**	**5.4**	=	**27.00 FT**
BALL VALVE	**0.0**	**3.8**	=	**0.00 FT**
EQUIVALENT LENGTH FROM FITTINGS			=	111.10 **FT.**
TOTAL EQUIVALENT LENGTH OF PIPE			=	1081.20 **FT.**
TOTAL HEAD LOSS FROM DELIVERY PIPE & FITTINGS			=	16.75 **FT**
MANIFOLD & LATERAL LOSSES = (1.31 X DISTILL PRESSURE)			=	0.00 **FT.**
TOTAL SYSTEM FRICTION HEAD LOSS			=	16.75 **FT**
STATIC HEAD			=	**22.10 FT**
TOTAL DYNAMIC HEAD = STATIC + FRICTION		TDH	=	38.85 **FT**

TDH (ft)	38.85 ft
Flow (GPM)	170 gpm
Pump Duration	8.8 min
Volume per cycle	1504 Gallons
Velocity	4.34 ft/sec **GOOD**

REFER TO GENERAL NOTES SHEET FOR GRADING & UTILITY NOTES

NOTE:
CONTRACTOR SHALL PERFORM THE REQUISITE TESTING TO THE SATISFACTION OF THE TOWN OF MILLIS AND STATE, AS APPROPRIATE, UPON COMPLETION OF THE SANITARY SEWER SYSTEM.

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5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: WI61041
DRAWN BY: JT
CHECKED BY: AFT
DATE: 11/18/2016
SCALE: AS NOTED
DWG NAME: WI61041_SS5_PUMP STATION EXTENSION

PROJECT:
SITE DEVELOPMENT PLANS
FOR
Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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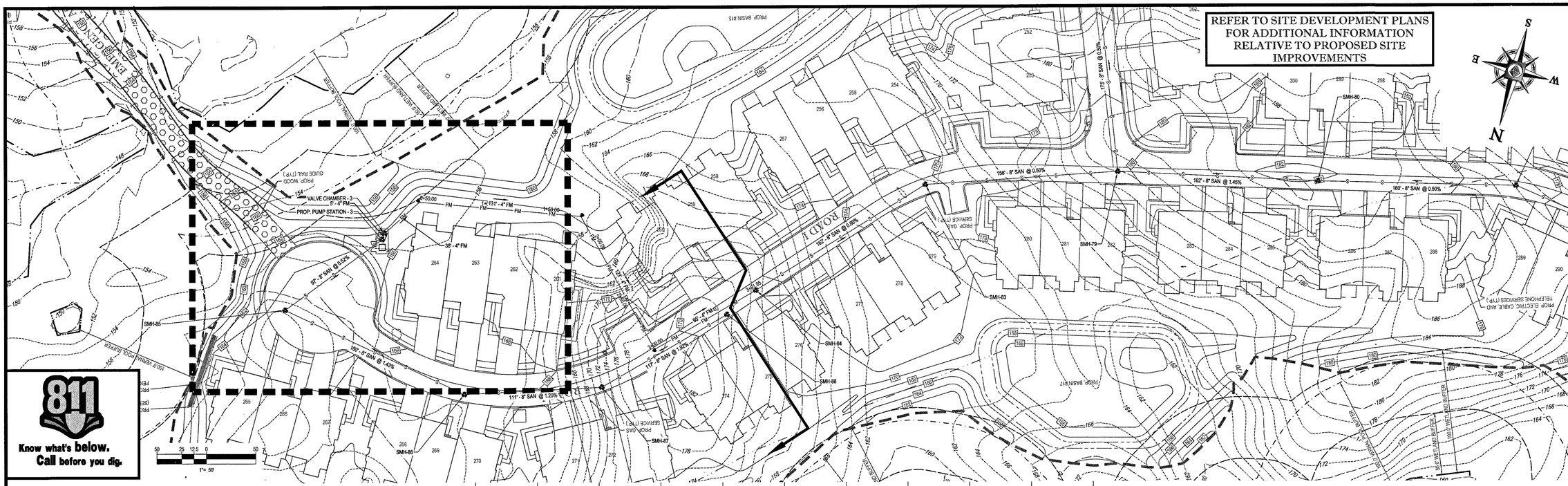
SHEET TITLE:
PUMP STATION 2 PLAN AND DETAILS

SHEET NUMBER:
83
OF 85

REV 5 - 08/11/2017

REFER TO SITE DEVELOPMENT PLANS FOR ADDITIONAL INFORMATION RELATIVE TO PROPOSED SITE IMPROVEMENTS



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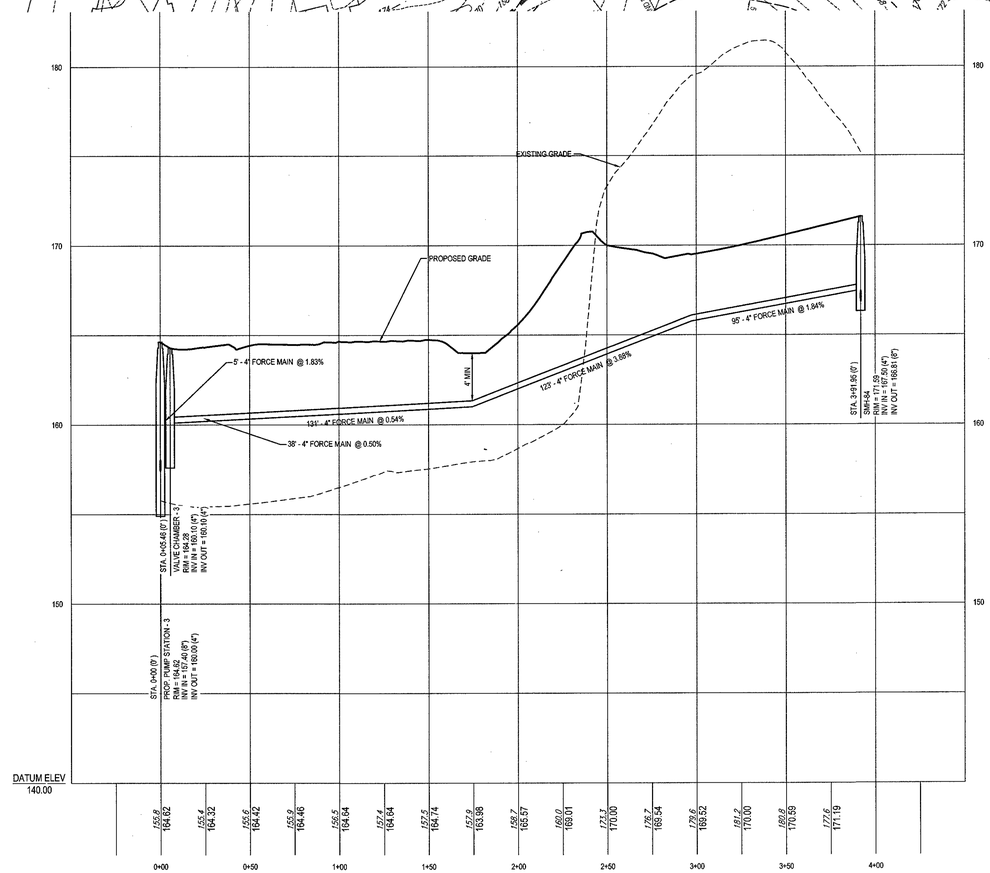

FORCE MAIN - 3

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

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CHECKED BY:	AFT
DATE:	11/18/2016
SCALE:	AS NOTED
CAD ID:	W161041_SS5_PUMP STATION EXTENSION

PROJECT:

SITE DEVELOPMENT PLANS

FOR

Toll Brothers

LOCATION OF SITE
MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
TOWN OF MILLIS
NORFOLK COUNTY,
MASSACHUSETTS

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NEW HAMPSHIRE LICENSE NO. 20280
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FLORIDA LICENSE NO. 86202

SHEET TITLE:

FORCE MAIN 3 PLAN AND PROFILE

SHEET NUMBER:

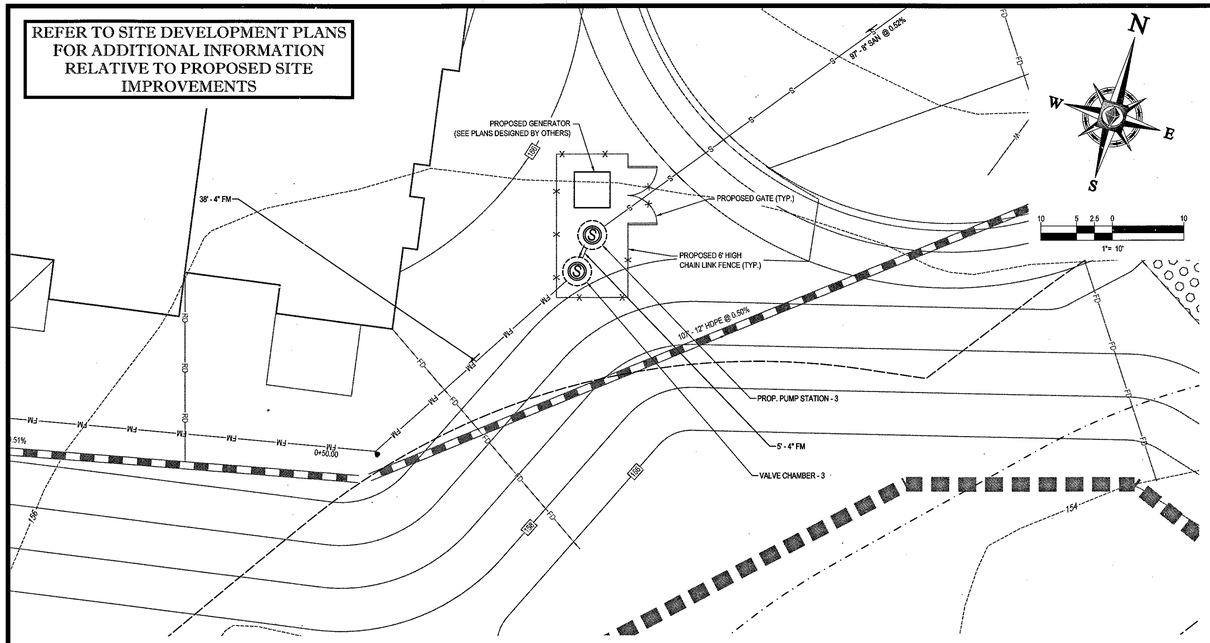
84

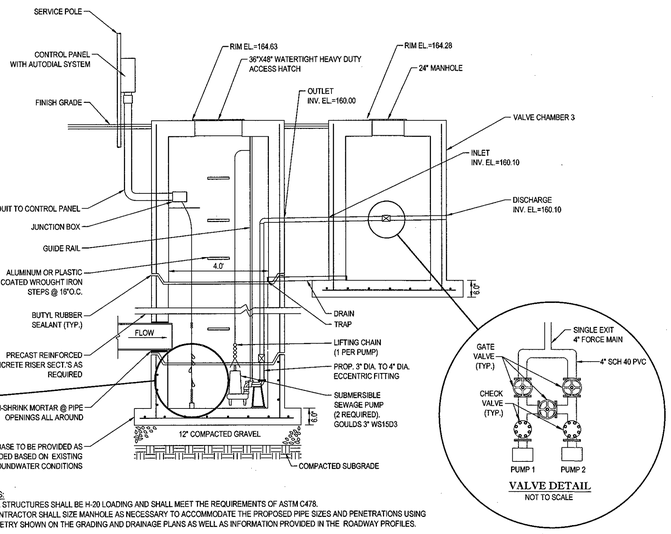
OF 85

REV 5 - 08/11/2017

P:\161041\Drawings\Plan Sets\Residential\REV5\W161041_ss5_Pump Station Extension.dwg, 84, 10/6/2014, 4:20:00 PM, jtan, XeroxX810-1.pc3, User\S4, 1:1

REFER TO SITE DEVELOPMENT PLANS FOR ADDITIONAL INFORMATION RELATIVE TO PROPOSED SITE IMPROVEMENTS





FLOAT DETAIL
NOT TO SCALE

VALVE DETAIL
NOT TO SCALE

NOTES:
1. ALL STRUCTURES SHALL BE H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
2. CONTRACTOR SHALL SIZE MANHOLE AS NECESSARY TO ACCOMMODATE THE PROPOSED PIPE SIZES AND PENETRATIONS USING GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS AS WELL AS INFORMATION PROVIDED IN THE ROADWAY PROFILES.

PUMP STATION 3 DETAIL

PUMP CHAMBER SYSTEM NOTES:

1. ALL ENTRIES FOR PUMP CHAMBER SHALL BE KORN SEAL OR EQUIVALENT.
2. DESIGN OPERATING VOLUME TO CLEAR THE VOLUME OF THE FORCE MAIN ON EACH PUMP CYCLE.
3. PUMP STATION ACCESS HATCH CENTERED OVER PUMPS TO BE A WATERTIGHT STAINLESS STEEL H-20, 48" SQUARE AS NOTED. INLET HATCH SHALL BE CENTERED OVER INLET PIPES AND WATERTIGHT STAINLESS STEEL H-20, 36" SQUARE AS NOTED. BOTH HATCHES SHALL BE SUPPORTED ON A PRE-CAST CONCRETE RISER DESIGNED TO ACCOMMODATE STAINLESS STEEL H-20 HATCHES. OPENINGS IN TOP OF PUMP CHAMBER SHALL MATCH THE HATCH DIMENSIONS.
4. A VENT SHALL BE LOCATED THROUGH THE TOP OF THE PUMP CHAMBER OR ALTERNATIVELY THROUGH THE PRECAST HATCH RISER. VENT PIPING SHALL BE SHOWN TO A LOCATION WHERE A CHARCOAL FILTER MAY BE LOCATED. IF NECESSARY, THE CHARCOAL FILTER WILL BE PROTECTED BY BOLLARDS.
5. AN AUDIBLE HORN, RED FLASHING LIGHT AND EMERGENCY CONTACT SIGN MOUNTED NEXT TO THE LIGHT SHALL BE FURNISHED TO PROVIDE NOTIFICATION OF PUMP STATION FAILURE AND PROVIDE AN EMERGENCY CONTACT NUMBER IF HORN/LIGHT ARE SOUNDING/VISIBLE. SUCH EQUIPMENT SHALL BE IDENTICAL TO THOSE USED ON OTHER TOWN OF MILLIS DPW PUMP STATIONS EXCEPT DIFFERENT CONTACT NUMBERS.
6. AN "AUTO DIALER" SHALL BE PROVIDED WITH THE STATION CONTROLS WHICH WILL NOTIFY A MANNED 24/7 LOCATION FOR EMERGENCY RESPONSE. DIALER SHALL PROVIDE PRIMARY AND BACKUP RESPONSE CALLS AND DIAL OUT TO FIRE DISPATCH IF ALL RESPONSES FAIL.
7. PUMPS SHALL ALTERNATE AND A RUN TIME METER SHALL BE INSTALLED IN THE CONTROL PANEL FOR EACH PUMP. EACH PUMP AND ALARM SHALL BE ON SEPARATE CIRCUITS.
8. SEWER PUMP SYSTEM VENDOR MAINTENANCE CONTRACT TO BE PROVIDED PRIOR TO TESTING AND ACTIVATING PUMP SYSTEM. WATER TIGHT TESTING, MANDREL TESTING AND VACUUM TESTING OF ALL SYSTEM COMPONENTS INCLUDING PUMP CHAMBER SHALL BE ACCORDING TO THE TOWN OF MILLIS DPW REGULATIONS. CONTRACTOR SHALL TEST FORCE MAIN PIPE IN THE PRESENCE OF AN ENGINEER USING A HYDROSTATIC TEST OF AT LEAST 1.5 TIMES THE SHUTOFF HEAD OF THE CONNECTED PUMPS OR 150 PSI, WHICHEVER IS GREATER. LOSS OF WATER PRESSURE DURING TEST SHALL NOT EXCEED 5 PSI IN A 2-HOUR PERIOD. ANY DEFECTIVE WORK SHOWN BY THIS TEST SHALL BE REPLACED ENTIRELY AT THE CONTRACTOR'S EXPENSE.
9. ALL INTERIOR PIPING AND HARDWARE SHALL BE STAINLESS STEEL.
10. SHOP DRAWINGS OF THE PUMP CHAMBER AND ALL PUMP EQUIPMENT TO BE APPROVED BY DPW AFTER REVIEW BY THE DESIGN ENGINEER.
11. CONTRACTOR SHALL PROVIDE TRAINING AND START UP SERVICES BY MANUFACTURER'S REP FOR PUMP STATION. START UP SERVICES SHALL INCLUDE INSTRUCTION AND DEMONSTRATION INCLUDING OPERATION WITH BACKUP POWER USING PORTABLE GENERATOR. SEWER PUMP SYSTEM O&M MANUAL TO BE PROVIDED AND REVIEWED BY DPW AND SHALL INCLUDE EMERGENCY CONTACTS AND MAINTENANCE VENDOR.
12. PUMP INSTALLATION, POWER FEED, ALARMS AND PUMP CONTROL PANEL TO BE INSTALLED BY A QUALIFIED LICENSED ELECTRICIAN.
13. CONTROL PANEL SHALL HAVE AN OUTLET WIRED TO ALLOW CONNECTION OF AN EMERGENCY GENERATOR WITH SUITABLE CAPABILITY TO ISOLATE THE CONTROL PANEL WHILE POWERED BY BACK UP GENERATOR.
14. A SEPARATE AS-BUILT SHALL BE PROVIDED TO DPW FOR THE SEWER PUMP STATION.
15. BOTH PUMPS MUST BE EQUIPPED WITH AN ALARM LOCATED IN THE BUILDING SERVED WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS. PUMPS SHALL BE CAPABLE OF PASSING A MINIMUM SOLID SIZE OF 1 1/4 INCH DIAMETER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
16. THE SUBMERSIBLE PUMPS SHALL BE INSTALLED WITH A HYDRAULICALLY SEALED SLIDE COUPLING ARRANGEMENT SO THAT THE PUMPS CAN BE REMOVED FROM THE PUMP CHAMBER FOR SERVICE AND INSPECTION AND THEN RETURNED TO SERVICE WITHOUT ENTERING THE PUMP CHAMBER TO UNBOLT OR UNLOCK THE CONNECTION BETWEEN THE PUMP AND PIPING.
17. DUPLEX PUMP CONTROLS SHALL BE PROVIDED IN THE PUMP CONTROL PANEL LOCATION WITHIN THE BUILDING AND CONTAINED IN WEATHER PROOF NEMA ENCLOSURE.
18. EACH SUBMERSIBLE PUMP SHALL BE EQUIPPED WITH 25 FEET OF POWER CABLE WITH EPOXY SEALED HOUSING WITH SECONDARY PRESSURE GROMMET FOR SEALING AND STRAIN RELIEF. ALL INCOMING LEAD WIRES SHALL BE SPLICED IN THE MOTOR TERMINAL HOUSING.
19. THE CONTRACTOR SHALL FURNISH AND INSTALL FIVE (5) MERCURY LIQUID LEVEL SENSORS WITH SUFFICIENT LENGTH OF CABLE FOR EACH PUMP STATION. SUSPENDED TYPE OF LEVEL SENSORS SHALL BE MERCURY TYPE PILOT DUTY DEVICES MOUNTED IN A CORROSION RESISTANT POLYPROPYLENE HOUSING, AND MOUNTED TO TANK INTERIOR BY A DETACHABLE BRACKET TO BE EASILY ACCESSIBLE FROM THE EXISTING MANWAYS.
20. THE PUMP MOTORS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AND SHALL BE FITTED WITH HOUR METERS THAT ARE RECORDED WITHIN THE PUMP PANEL.

PUMP CHAMBER SYSTEM:

PUMP REQUIREMENTS: TOTAL DYNAMIC HEAD= 25 FT @ 160 GPM

PUMP SPECIFICATIONS: USE GOULDS SUBMERSIBLE SEWAGE PUMP MODEL WS1503 1.5 HP, 3 PHASE, 60 HZ, WITH 6.5" IMPELLER OR APPROVED EQUAL.

BOTH PUMPS MUST BE EQUIPPED WITH AN ALARM LOCATED IN THE CONTROL PANEL WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS. PUMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

DESIGN CALCULATIONS

DESIGN FLOW CALCS:			
UNITS SERVED			**17.00 UNITS**
ESTIMATED SEWAGE GENERATION			
(ASSUME 70% 2 BEDROOM @ 150 GPD AND 30% 3 BEDROOM @ 330 GPD)			**204.00 GPD-UNIT**
ESTIMATED SEWAGE GENERATION			
DESIGN FLOW			**3468.00 GPD**
WET WEATHER FLOW ADJUSTMENT:			
INFILTRATION ESTIMATE			
(GPD-INCH DIA PIPE-MILE OF PIPE)			**250.00**
TOTAL LENGTH OF NEW 8" SEWER PIPE			**490.00 FT**
WET WEATHER FLOWS			**185.61 GPD**
TOTAL PEAK WET WEATHER FLOWS			**3653.61 GPD**
			2.54 GPM
PEAKING FACTOR			**6.00**
PEAKING FACTOR DESIGN FLOW			**20808.00 GPD**
			14.45 GPM
DOSE VOLUME		=	**1375 GAL**
PUMP RUNNING TIME PER CYCLE		=	**8.6 MIN.**
PUMP RUNNING TIME (LAG PUMP)		=	**8.7 MIN.**
PUMP DISCHARGE RATE		=	**160 GPM**
PUMP SWITCHING DESIGN:			
DOSE VOLUME 1374.79 GALLONS 184.22 CUBIC FEET			
RADIUS 3.00 FT. (INSIDE DIMENSION)			
WIDTH N/A FT (INSIDE DIMENSION)			
HEIGHT 6.50 FT (FOR DOSE VOLUME)			
INLET INVERT ELEVATION		=	157.40
OUTLET INVERT ELEVATION		=	**160.00**
DOSES PER DAY		=	83.41 **DOSES**
STANDING WATER LEVEL IN CHAMBER		=	2.10 **FT**
ELEVATION OF TANK BOTTOM		=	**147.80**
L1= ELEVATION OF ALL PUMPS OFF		=	**149.90**
L2= ELEVATION OF LEAD PUMP ON		=	**156.40**
L3= ELEVATION OF ALARM ON		=	**156.90**
L4=ELEVATION OF LAG PUMP ON		=	**157.15**
L2-L1		=	**6.50 FT**
DESTINATION INVERT ELEVATION		=	167.50 **FT**
FRICTION LOSSES:			
COEFFICIENT	C	=	150.00 **FOR PVC**
DELIVERY PIPE LENGTH	4 INCH	=	408.00 **FT.**
FRICTION LOSS IN DELIVERY PIPE PER 100 FT		=	1.38 **FT/100 FT**
EQUIVALENT LENGTH OF PIPE FOR FITTINGS & VALVES			
NO. EQ. LENGTH			
ENLARGEMENT **0.0** **0.0**		=	**0.00 FT**
CONTRACTION **0.0** **0.0**		=	**0.00 FT**
CHECK VALVE **1.0** **33.6**		=	**33.60 FT**
ELBOWS 90 **7.0** **10.1**		=	**70.70 FT**
ELBOWS 45 **1.0** **5.4**		=	**5.40 FT**
BALL VALVE **0.0** **3.8**		=	**0.00 FT**
EQUIVALENT LENGTH FROM FITTINGS		=	109.70 **FT.**
TOTAL EQUIVALENT LENGTH OF PIPE		=	517.70 **FT.**
TOTAL HEAD LOSS FROM DELIVERY PIPE & FITTINGS		=	7.17 **FT**
MANIFOLD & LATERAL LOSSES = (1.31 X DISTILL PRESSURE)		=	0.00 **FT.**
TOTAL SYSTEM FRICTION HEAD LOSS		=	7.17 **FT**
STATIC HEAD		=	**17.60 FT**
TOTAL DYNAMIC HEAD = STATIC + FRICTION	TDH	=	24.77 **FT**

TDH (ft)	24.77 ft
Flow (GPM)	160 gpm
Pump Duration	8.6 min
Volume per cycle	1375 Gallons
Velocity	4.09 ft/sec **GOOD**

REFER TO GENERAL NOTES SHEET FOR GRADING & UTILITY NOTES

NOTE:
CONTRACTOR SHALL PERFORM THE REQUISITE TESTING TO THE SATISFACTION OF THE TOWN OF MILLIS AND STATE, AS APPROPRIATE, UPON COMPLETION OF THE SANITARY SEWER SYSTEM.

NOTE:
PROPOSED LOCATION OF UNDERGROUND ELECTRIC CONDUIT AND ALARM PANEL FOR PUMP CHAMBER TO BE COORDINATED WITH OWNER OR OWNERS REPRESENTATIVE AND ENGINEER. COORDINATE ELECTRICAL REQUIREMENTS/ADEQUACY OF CIRCUITS AND CONNECTION LOCATIONS FOR ALARMS WITH ARCHITECT AND ENGINEER.

811 Know what's below. Call before you dig.

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REVISIONS

REV	DATE	COMMENT	BY
1	01/04/2017	REVISIONS	JT
2	04/19/2017	REVISIONS PER TOWN COMMENTS	JT
3	06/06/2017	DEFINITIVE PLAN SET REVISIONS	JT
4	08/03/2017	DEFINITIVE PLAN SET REVISIONS	JT
5	08/11/2017	DEFINITIVE PLAN SET REVISIONS	JT
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DEFINITIVE SET

PROJECT No.: W161041
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FILE NAME: W161041_SS5_PUMP STATION EXTENSION

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SITE DEVELOPMENT PLANS
FOR
Toll Brothers

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MAP# 01, LOTS# 1-4, 6
MAP# 05, LOT# 35
WALNUT STREET
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SHEET TITLE:
PUMP STATION 3 PLAN AND DETAILS

SHEET NUMBER:
85
OF 85

REV 5 - 08/11/2017

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