



Tuesday, July 28 2020 | 7pm

Via Zoom: <a href="https://uso2web.zoom.us/j/81742489338">https://uso2web.zoom.us/j/81742489338</a>

#### Conference Call | Zoom

Consistent with the Governor's orders suspending certain provisions of the Open Meeting Law and banning gatherings of more than 10 people, this meeting will be conducted by remote participation to the greatest extent possible. The public may not physically attend this meeting, but every effort will be made to allow the public to view and/or listen to the meeting in real time. Persons who wish to do so are invited to click on the following link <a href="https://uso2web.zoom.us/j/81742489338">https://uso2web.zoom.us/j/81742489338</a>. If you do not have a camera or microphone on your computer you may use the following dial in number: 1-301-715-8592 Meeting ID 817 4248 9338. Please only use dial in or computer and not both as feedback will distort the meeting. This meeting will be audio and video recorded.

ITEM 1 | Call to Order

ITEM 2 | Approval of Minutes from June 22, 2020 Vote anticipated.

ITEM 3 | Lovis Ave Extension

Public hearing on Lovis Ave. Ext. TM#22-064018B

ITEM 4 | Glendale Ave Extension/ Ossipee Lane

Public hearing on Glendale Ave. Ext.

ITEM 5 | 14 Montrose School Lane

Update on landscaping within the restrictive covenant area.

ITEM 6 | Items Not Anticipated by Chair

ITEM 7 | Action Items

ITEM 8 | Adjournment

NOTES | LOVIS AVE. EXT. PRELIMINARY PLAN FILED NOV. 13, 2018 & LAST REVIEWED MAR. 12, 2019.

THE DEFINITIVE PLAN FILED JUNE 11, 2019 AND THE PUBLIC HEARING OPENED ON JULY 23, 2019.

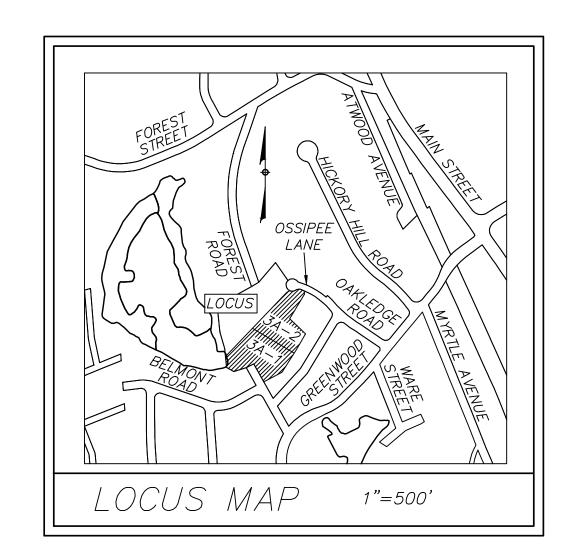
PLANNING BOARD'S DEADLINE TO FILE THE LOVIS AVE. EXT. DECISION IS SEPTEMBER 30, 2020.



# DEFINITIVE SUBDIVSION PLAN GLENDALE AVENUE EXTENSION

IN WAKEFIELD, MASSACHUSETTS MAY 6, 2019

REVISIONS THROUGH FEBRUARY 3, 2020



I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

DAVID J. LeROY, P.L.S. 47416 DATE

APPLICANT & OWNER:

CAROL BODURTHA HANNIGAN 11 OSSIPEE LANE WAKEFIELD, MASSACHUSETTS 01880

CIVIL ENGINEER & LAND SURVEYOR:

HANNIGAN ENGINEERING, INC. 8 MONUMENT SQUARE LEOMINSTER, MASSACHUSETTS 01453 TEL: (978) 534 - 1234

#### PLAN INDEX

DEFINITIVE SET

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SHEET	1	LOCUS PLAN
SHEET	2	PLAN OF LAND
SHEET	3	EXISTING CONDITIONS PLAN
SHEETS	4	SITE DEVELOPMENT PLAN
SHEET	5	LIMIT OF WORK PLAN
SHEET	6	STREET LAYOUT PLAN
SHEET	7-8	UTILITY PLAN & PROFILE
SHEET	9-10	CONSTRUCTION DETAILS

SUBDIVISION CONTROL LAW
IS REQUIRED
WAKEFIELD PLANNING BOARD

DATE: \_\_\_\_

I, \_\_\_\_\_\_\_, THE TOWN CLERK OF THE TOWN OF WAKEFIELD, HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SUCH NOTICE

TOWN CLERK DA

5	02/03/20	BOARD/HEARING COMMENTS	CMA
4	01/03/20	DRAINAGE EASEMENTS	WDH
3	10/31/19	BOARD/HEARING COMMENTS	WDH
2	9/23/19	TOWN REVIEW	WDH
1	09/9/19	TOWN REVIEW	WDH
NO.	DATE	REVISIONS	BY

HANNIGAN ENGINEERING, INC.

8 Monument Square (978) 53-Leominster, Massachusetts 01453 (978) 53www.hanniganengineering.com

DEFINITIVE SUBDIVISION
WAKEFIELD, MASSACHUSETTS

PREPARED FOR:

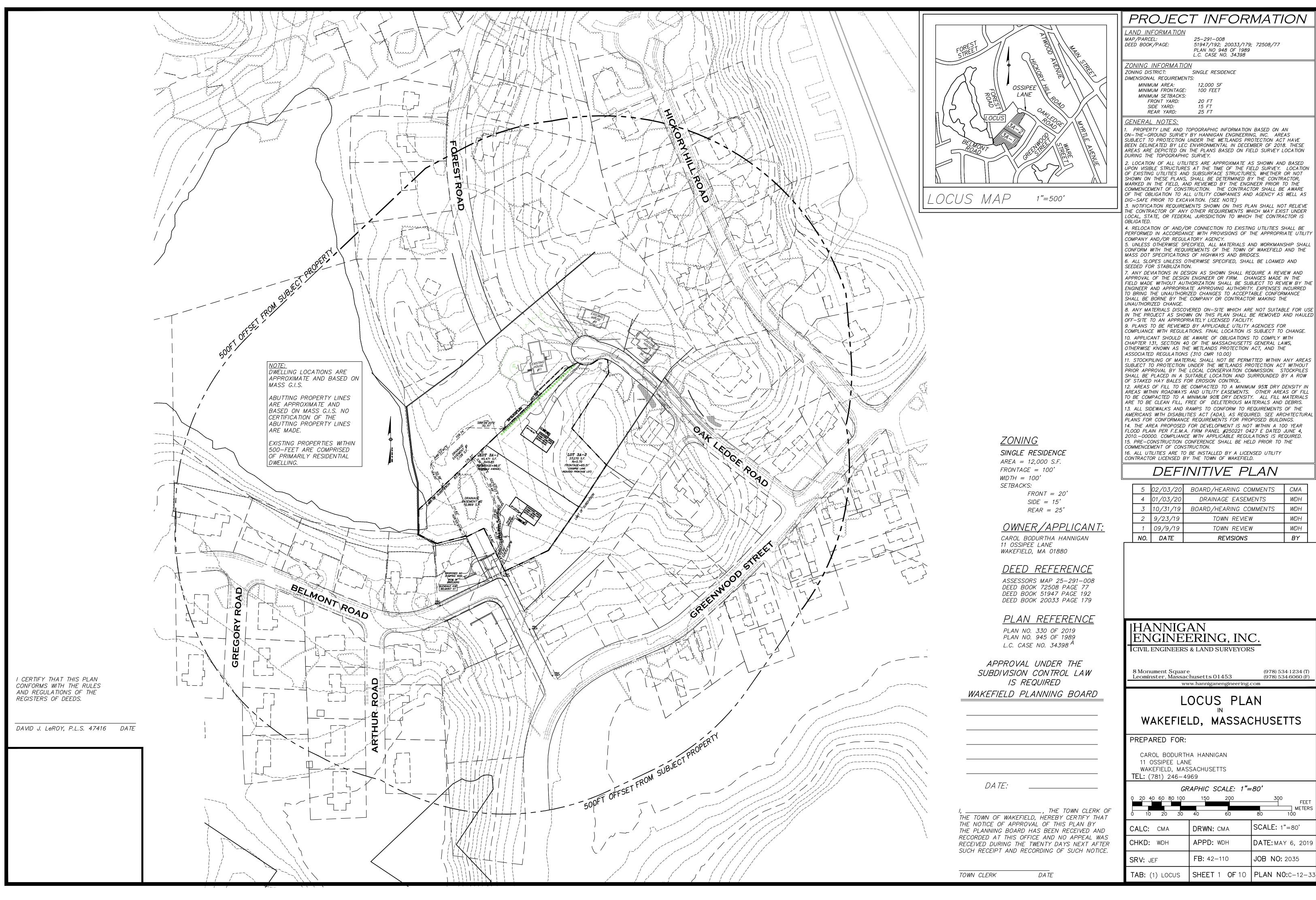
CAROL BODURTHA HANNIGAN 11 OSSIPEE LANE WAKEFIELD, MASSACHUSETTS TEL: (781) 246-4969

 CALC:
 DJL
 DRWN:
 DJL
 SCALE:
 1"=40'

 CHKD:
 WDH
 APPD:
 DJL
 DATE: MAY 6, 2019

 SRV:
 JEF
 FB:
 42-110
 JOB NO:
 2035

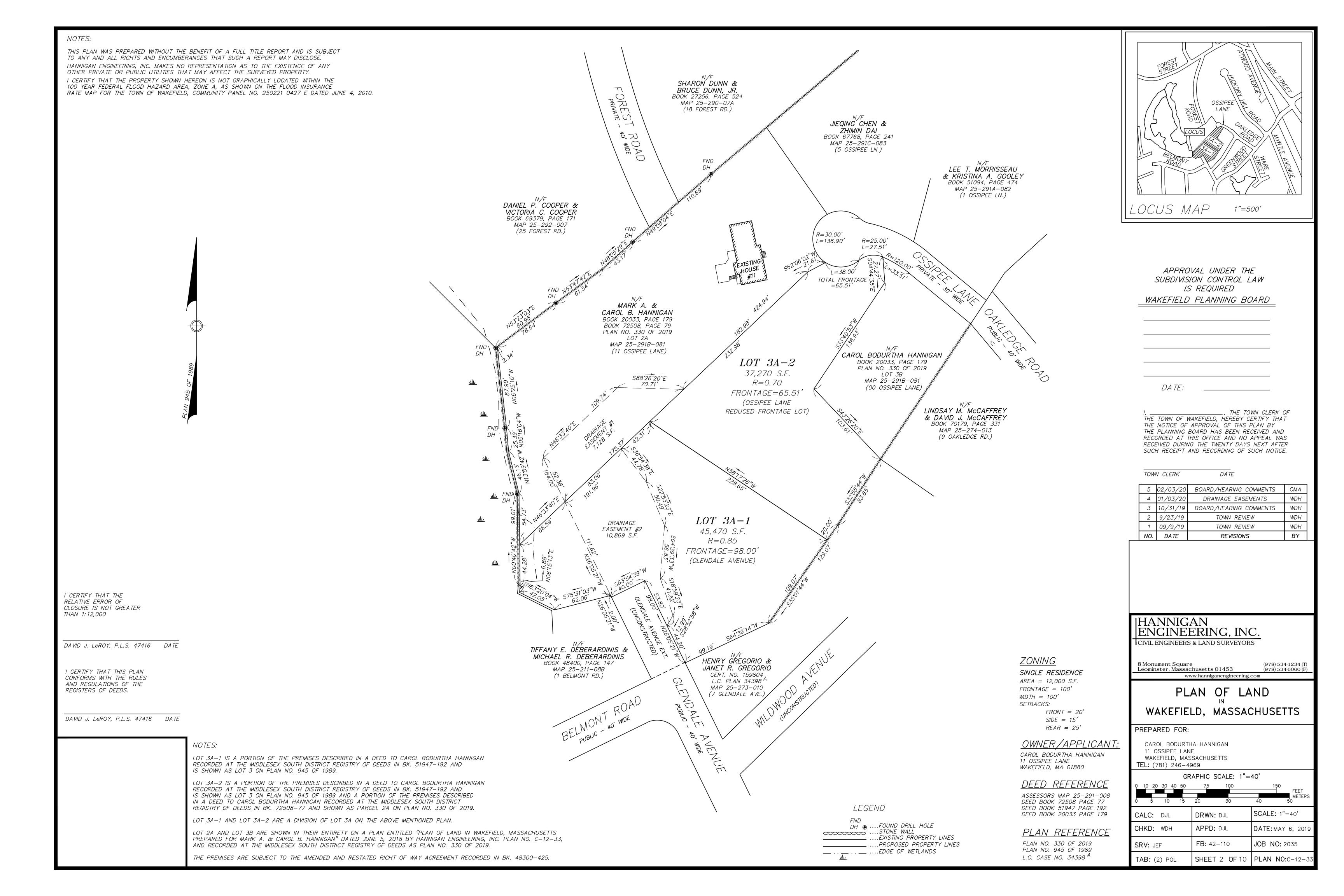
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 COVER
 SHEET 0 OF 10
 PLAN NO:
 C-12-33

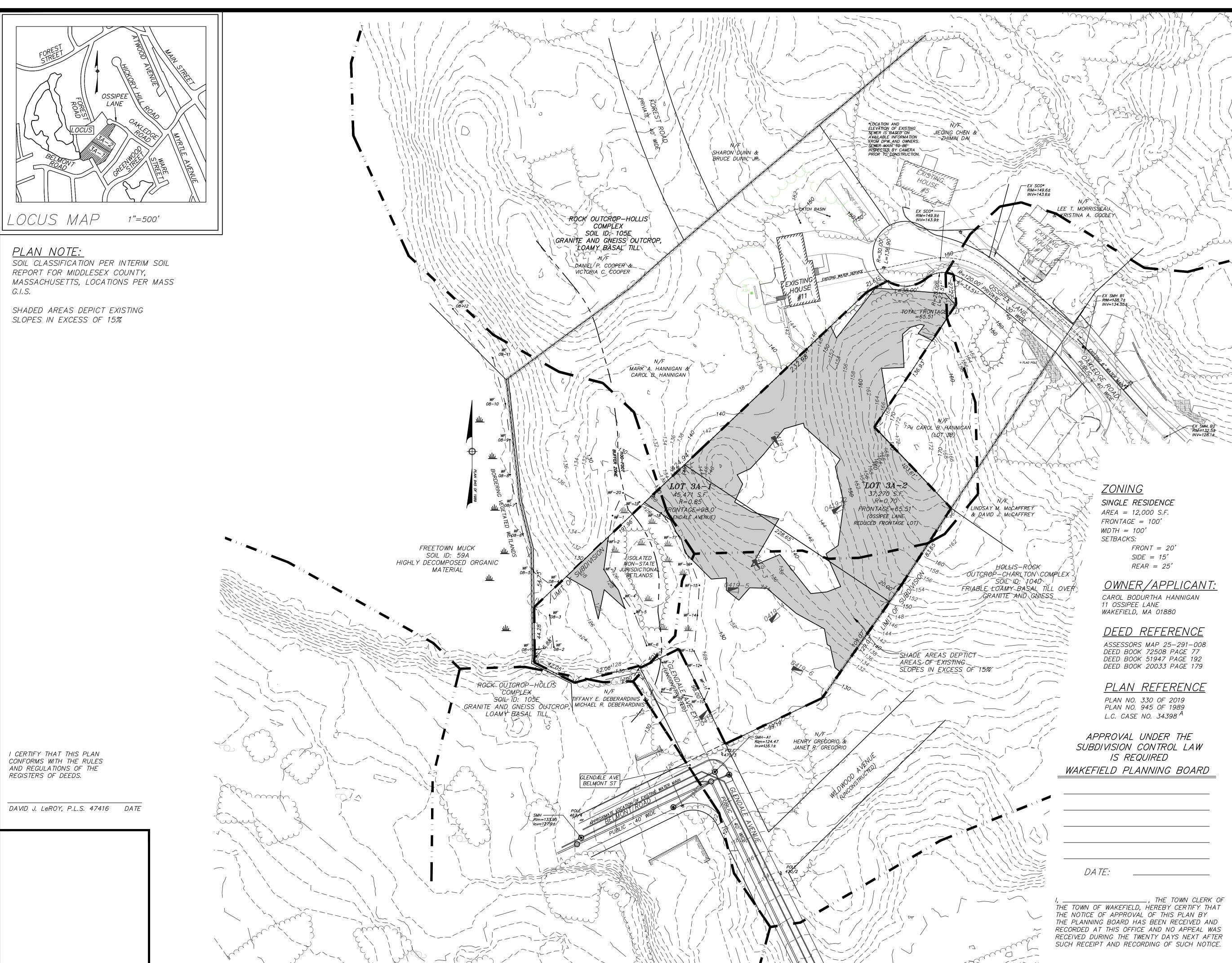


FIELD MADE WITHOUT AUTHORIZATION SHALL BE SUBJECT TO REVIEW BY THE

 NO.	DATE	REVISIONS	BY
1	09/9/19	TOWN REVIEW	WDH
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3	10/31/19	BOARD/HEARING COMMENTS	WDH
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DATE: MAY 6, 2019





#### PROJECT INFORMATION

LAND INFORMATION

MAP/PARCEL: DEED BOOK/PAGE: 25-291-008 51947/192; 20033/179; 72508/77 PLAN NO 948 OF 1989 L.C. CASE NO. 34398

ZONING INFORMATION
ZONING DISTRICT: SINGLE RESIDENCE
DIMENSIONAL REQUIREMENTS:

MINIMUM AREA: 12,000 SF
MINIMUM FRONTAGE: 100 FEET
MINIMUM SETBACKS:
FRONT YARD: 20 FT
SIDE YARD: 15 FT

REAR YARD:

SEEDED FOR STABILIZATION.

#### GENERAL NOTES:

1. PROPERTY LINE AND TOPOGRAPHIC INFORMATION BASED ON AN ON-THE-GROUND SURVEY BY HANNIGAN ENGINEERING, INC. AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT HAVE BEEN DELINEATED BY LEC ENVIRONMENTAL IN DECEMBER OF 2018. THESE AREAS ARE DEPICTED ON THE PLANS BASED ON FIELD SURVEY LOCATION DURING THE TOPOGRAPHIC SURVEY.

25 FT

2. LOCATION OF ALL UTILITIES ARE APPROXIMATE AS SHOWN AND BASED UPON VISIBLE STRUCTURES AT THE TIME OF THE FIELD SURVEY. LOCATION OF EXISTING UTILITIES AND SUBSURFACE STRUCTURES, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE DETERMINED BY THE CONTRACTOR, MARKED IN THE FIELD, AND REVIEWED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL BE AWARE OF THE OBLIGATION TO ALL UTILITY COMPANIES AND AGENCY AS WELL AS

DIG-SAFE PRIOR TO EXCAVATION. (SEE NOTE)

3. NOTIFICATION REQUIREMENTS SHOWN ON THIS PLAN SHALL NOT RELIEVE
THE CONTRACTOR OF ANY OTHER REQUIREMENTS WHICH MAY EXIST UNDER
LOCAL, STATE, OR FEDERAL JURISDICTION TO WHICH THE CONTRACTOR IS

4. RELOCATION OF AND/OR CONNECTION TO EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY.
5. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL

CONFORM WITH THE REQUIREMENTS OF THE TOWN OF WAKEFIELD AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.

6. ALL SLOPES UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND

7. ANY DEVIATIONS IN DESIGN AS SHOWN SHALL REQUIRE A REVIEW AND APPROVAL OF THE DESIGN ENGINEER OR FIRM. CHANGES MADE IN THE FIELD MADE WITHOUT AUTHORIZATION SHALL BE SUBJECT TO REVIEW BY THE ENGINEER AND APPROPRIATE APPROVING AUTHORITY. EXPENSES INCURRED TO BRING THE UNAUTHORIZED CHANGES TO ACCEPTABLE CONFORMANCE SHALL BE BORNE BY THE COMPANY OR CONTRACTOR MAKING THE UNAUTHORIZED CHANGE.

8. ANY MATERIALS DISCOVERED ON—SITE WHICH ARE NOT SUITABLE FOR USE IN THE PROJECT AS SHOWN ON THIS PLAN SHALL BE REMOVED AND HAULED OFF—SITE TO AN APPROPRIATELY LICENSED FACILITY.

9. PLANS TO BE REVIEWED BY APPLICABLE UTILITY AGENCIES FOR

COMPLIANCE WITH REGULATIONS. FINAL LOCATION IS SUBJECT TO CHANGE.

10. APPLICANT SHOULD BE AWARE OF OBLIGATIONS TO COMPLY WITH
CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS,
OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND THE
ASSOCIATED REGULATIONS (310 CMR 10.00)

ASSOCIATED REGULATIONS (310 CMR 10.00)

11. STOCKPILING OF MATERIAL SHALL NOT BE PERMITTED WITHIN ANY AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT WITHOUT PRIOR APPROVAL BY THE LOCAL CONSERVATION COMMISSION. STOCKPILES SHALL BE PLACED IN A SUITABLE LOCATION AND SURROUNDED BY A ROW OF STAKED HAY BALES FOR EROSION CONTROL.

AREAS WITHIN ROADWAYS AND UTILITY EASEMENTS. OTHER AREAS OF FILL TO BE COMPACTED TO A MINIMUM 90% DRY DENSITY. ALL FILL MATERIALS ARE TO BE CLEAN FILL, FREE OF DELETERIOUS MATERIALS AND DEBRIS.

13. ALL SIDEWALKS AND RAMPS TO CONFORM TO REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), AS REQUIRED. SEE ARCHITECTURAL PLANS FOR CONFORMANCE REQUIREMENTS FOR PROPOSED BUILDINGS.

14. THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #250221 0427 E DATED JUNE 4, 2010.—00000. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.

15. PRE—CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

12. AREAS OF FILL TO BE COMPACTED TO A MINIMUM 95% DRY DENSITY IN

16. ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE TOWN OF WAKEFIELD.

# DEFINITIVE PLAN

4 01/03/20 DRAINAGE EASEMENTS 3 10/31/19 BOARD/HEARING COMMENTS	WDH
3 10/31/19 BOARD/HEARING COMMENT.	
	S WDH
2 9/23/19 TOWN REVIEW	WDH
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NO. DATE REVISIONS	BY

#### 

CIVIL ENGINEERS & LAND SURVEYORS

8 Monument Square Leominster, Massachusetts 01453

sachusetts 01453 (978) 534-6 www.hanniganengineering.com

(978) 534-1234 (T)

# EXISTING CONDITIONS PLAN WAKEFIELD, MASSACHUSETTS

PREPARED FOR:

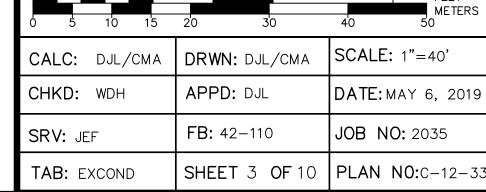
TOWN CLERK

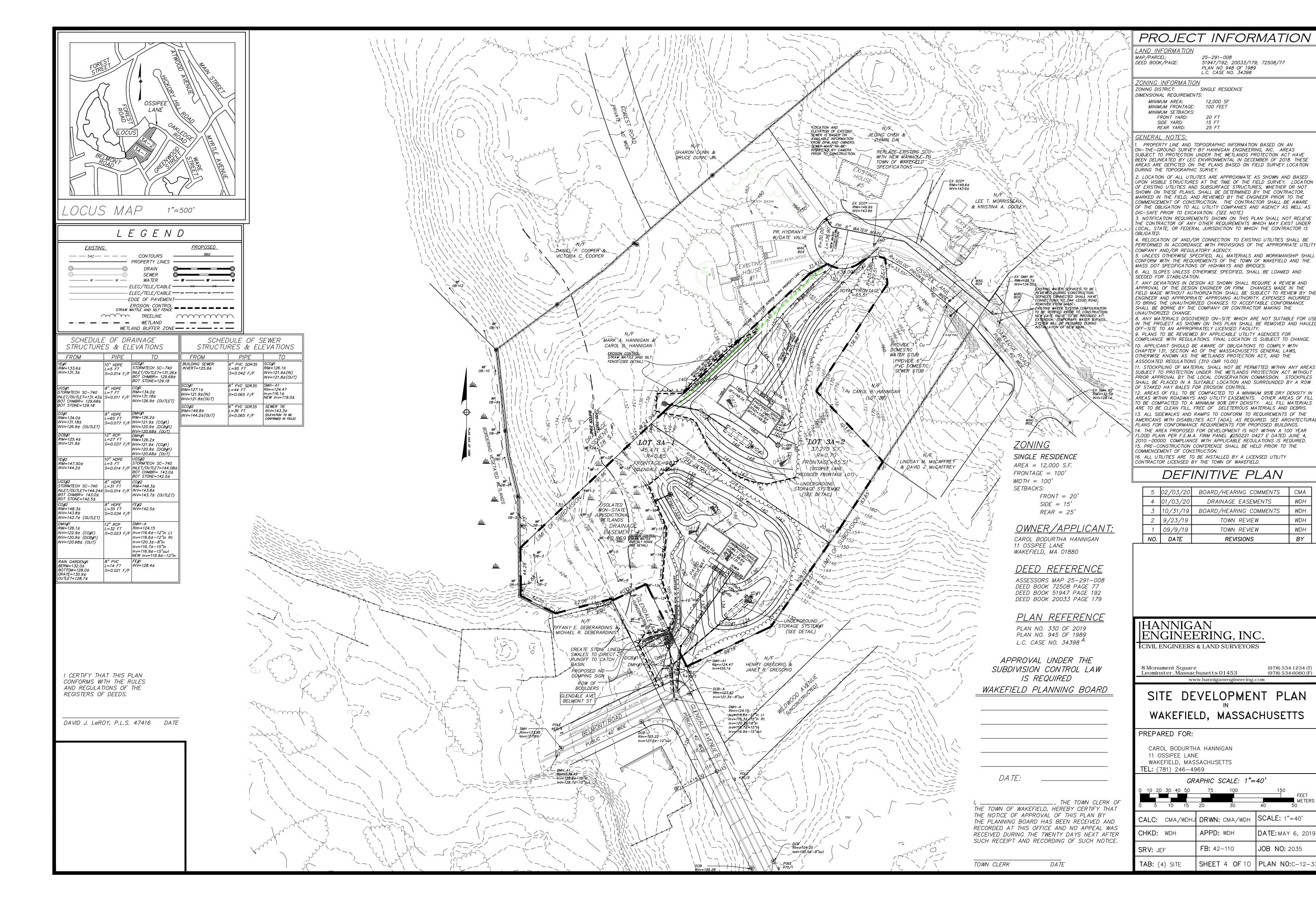
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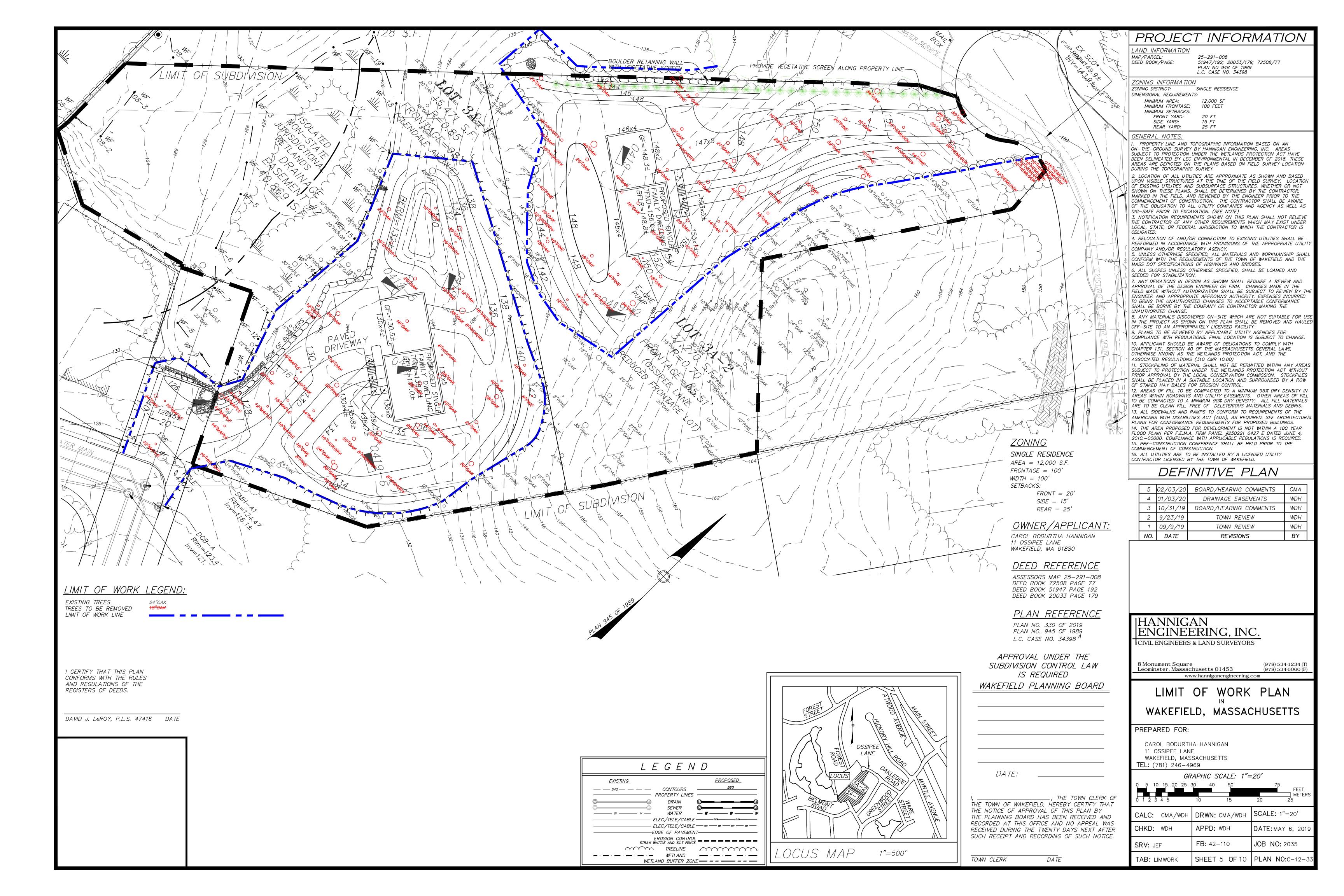
CAROL BODURTHA HANNIGAN 11 OSSIPEE LANE WAKEFIELD, MASSACHUSETTS

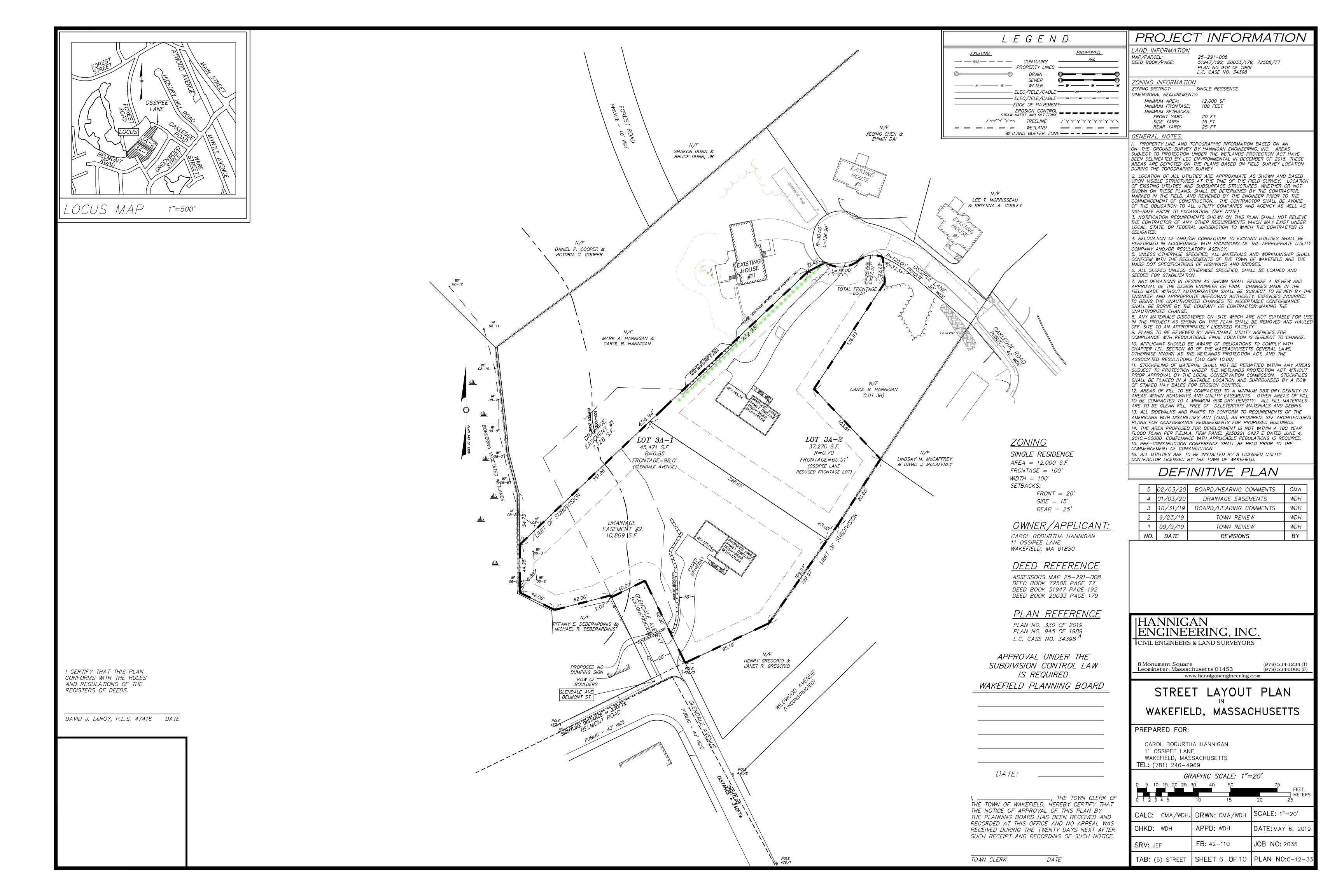
TEL: (781) 246-4969

GRAPHIC SCALE: 1"=40'











NON-JURISDICTIONAL WETLAND PA EXISTING LEFT OFFSE XISTING CENTERLINE -EXISTING RIGHT OFF\$ET— Rim=123.4 Inv=121.3-0UT 12"HDPE L=32 FT ✓ S=0.075 F/F S=0.023 F/ L=14 FT S=0.071 F/F Rim=125.4 Inv=121.9-0UT -**DMH#1** 0+07 6.0R Rim=126.2± Rim=124.15 Inv=121.9-12"in  $Inv=116.6\pm-12$ "in Lt Inv=120.9-12"in Inv=116.6±-12"in Rt Inv=120.68-10"o  $Inv=120.3\pm-8$ "in SERVICE FROM  $lnv=116.7\pm-15$ "in HOUSE  $lnv=116.9\pm-15$ "out 6" PVC NEW  $lnv=119.9\pm-12$ "in L=95 FT S=0.042 F/F SMH-A \_\_\_\_ Rim=124.47 \\_|*SCO#1* Inv=116.1± EXISTING WATER MAIN RIM=126.9± NEW Inv=119.0± (APPROXIMATE) INV=121.8±(OUT) L=44 FT S=0.065 F/F -1+15-1+00 0+00 0+97

L E G E N D<u>PROPOSED</u> <u>EXISTING</u> — — 542— — — CONTOURS — SEWER \_ w \_\_\_\_ w \_\_\_ w WA TER - ELEC/TELE/CABLE --- ECT ---- ECT ---- ECT ---- ECT -----EDGE OF PAVEMENT-- WETLAND - - - - -

WETLAND BUFFER ZONE - - - - - -

**ZONING** 

SINGLE RESIDENCE AREA = 12,000 S.F.FRONTAGE = 100'WIDTH = 100'SETBACKS:

FRONT = 20'SIDE = 15'REAR = 25'

## OWNER/APPLICANT:

CAROL BODURTHA HANNIGAN *11 OSSIPEE LANE* WAKEFIELD, MA 01880

#### DEED REFERENCE

ASSESSORS MAP 25-291-008 DEED BOOK 72508 PAGE 77 DEED BOOK 51947 PAGE 192 DEED BOOK 20033 PAGE 179

#### PLAN REFERENCE

PLAN NO. 330 OF 2019 PLAN NO. 945 OF 1989 L.C. CASE NO. 34398 A

APPROVAL UNDER THE SUBDIVISION CONTROL LAW *IS REQUIRED* 

#### WAKEFIELD PLANNING BOARD

THE TOWN CLERK OF THE TOWN OF WAKEFIELD, HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SUCH NOTICE.

DATE TOWN CLERK

## PROJECT INFORMATION

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DEED BOOK/PAGE.

25-291-008 51947/192; 20033/179; 72508/77 PLAN NO 948 OF 1989 L.C. CASE NO. 34398

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DIMENSIONAL REQUIREMENTS: MINIMUM AREA: MINIMUM FRONTAGE: 100 FEET MINIMUM SETBACKS:

> FRONT YARD: SIDE YARD:

REAR YARD:

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# DEFINITIVE PLAN

1 NO.	09/9/19 DATF	TOWN REVIEW  REVISIONS	WDH BY
2	9/23/19	TOWN REVIEW	WDH
3	10/31/19	BOARD/HEARING COMMENTS	WDH
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#### IHANNIGAN ENGINEERING, INC.

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8 Monument Square Leominster, Massachusetts 01453

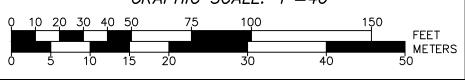
(978) 534-1234 (T) www.hanniganengineering.com

# WAKEFIELD, MASSACHUSETTS

PREPARED FOR:

CAROL BODURTHA HANNIGAN 11 OSSIPEE LANE WAKEFIELD, MASSACHUSETTS

**TEL:** (781) 246-4969 GRAPHIC SCALE: 1"=40'



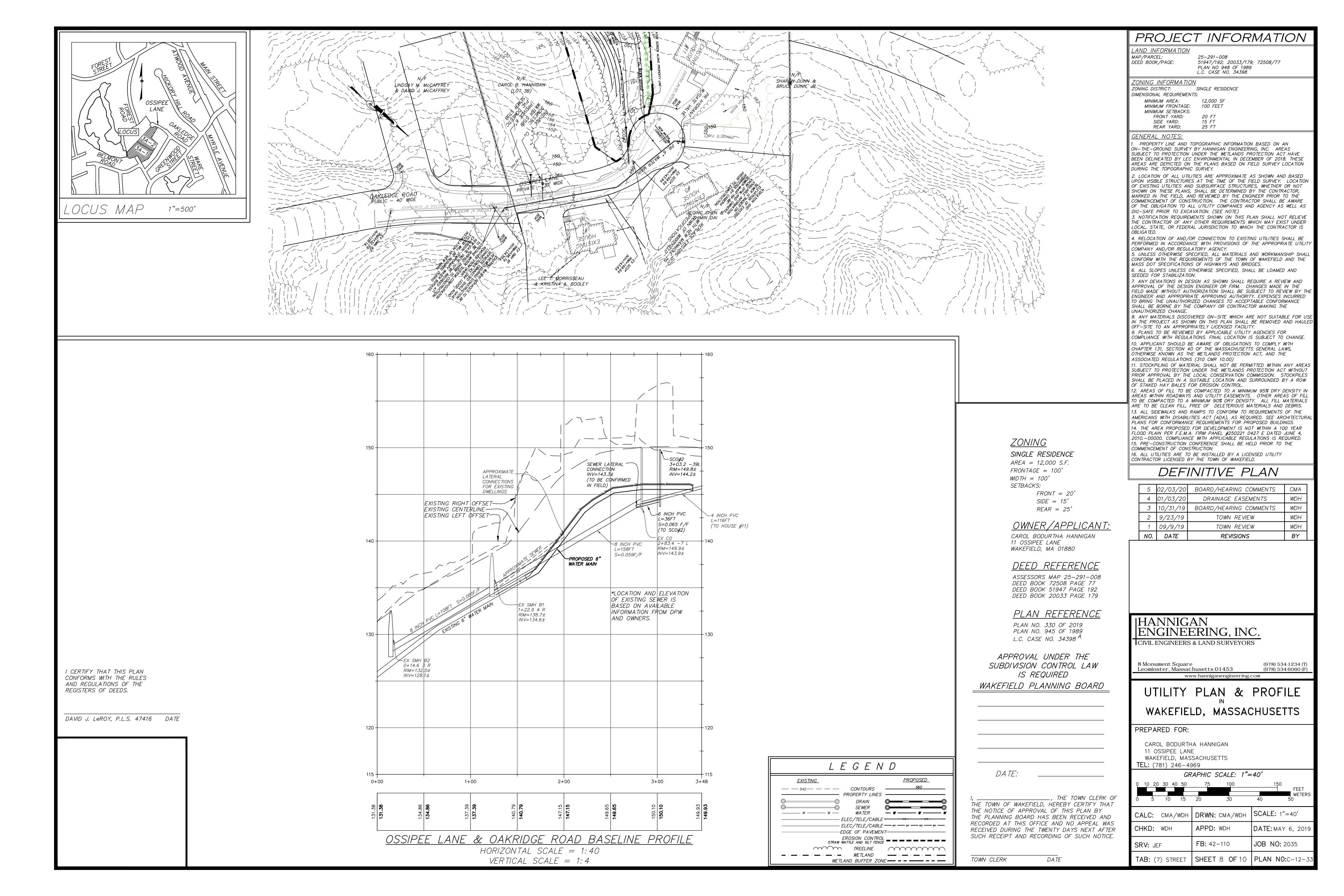
SCALE: 1"=40' CALC: CMA/WDH | DRWN: CMA/WDF APPD: WDH CHKD: WDH **DATE:** MAY 6, 2019 FB: 42-110 JOB NO: 2035 SRV: JEF TAB: (6) STREET SHEET 7 OF 10 PLAN NO:C-12-33

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

DAVID J. LeROY, P.L.S. 47416 DATE

PROPOSED DRIVEWAY PROFILE HORIZONTAL SCALE = 1:40

VERTICAL SCALE = 1:4



# EROSION & SEDIMENTATION CONTROL PLAN

. THE PURPOSE OF THIS PLAN IS TO PRESENT A PREVENTIVE METHOD OF CONSTRUCTION TO MINIMIZE THE IMPACT OF THE CONSTRUCTION ACTIVITIES UPON WETLAND AND OTHER SENSITIVE AREAS. THE DATA CONTAINED ON THIS PLAN IS INTENDED TO SUPPLEMENT THE DEVELOPER OR CONTRACTORS' EXPERTISE AND IS NOT MEANT TO CIRCUMVENT LOGICAL DECISIONS REQUIRED BY A VARIETY OF FIELD CONDITIONS

INCLUDING WEATHER AND THE TYPE OF EQUIPMENT AVAILABLE TO THE

2. THE CONTRACTOR IS TO BE AWARE OF THE REQUIREMENTS AND OBLIGATIONS TO COMPLY WITH CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND ITS ASSOCIATED REGULATIONS (310 CMR 10.00). CERTAIN PERMITS IN THE FORM OF AN ORDER OF CONDITIONS, OR OTHER FORMAT, MAY BE REQUIRED FOR THE CONSTRUCTION AS DEPICTED ON THIS PLAN. THESE PERMITS SHALL BE REVIEWED AND ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ALSO MAINTAIN COPIES OF ALL PERMITS ON SITE

3. IF CHANGES IN THE PROJECT ARE REQUIRED DUE TO FIELD CONDITIONS THE DEVELOPER/CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER FOR REVIEW OF THESE CONDITIONS. UPON REVIEW. AND PRIOR TO THE IMPLEMENTATION OF ANY CHANGE, THE CONTRACTOR AND THE ENGINEER SHALL MEET WITH THE APPROPRIATE LOCAL AND/OR STATE OFFICIAL. OR ITS AGENT. TO DETERMINE IF THE CHANGE RÉQUIRES MODIFICATION TO EXISTING APPROVED PERMITS.

4. ALTERATION AND/OR DESTRUCTION OF WETLAND AREAS WITHOUT PRIOR CONSENT OF THE CONSERVATION COMMISSION IS PROHIBITED. SILTATION PLUMES, ILLICIT DISCHARGES, OR INADVERTANT ALTERATION SHALL BE CONSIDERED AS ACTIVITIES NOT PERMITTED BY THE ORDER AND SHALL BE REPORTED TO THE CONSERVATION COMMISSION ALONG WITH THE PROPOSED MITIGATIVE MEASURES.

5. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE EROSION AND SEDIMENT CONTROL BARRIER SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE EROSION CONTROL BARRIER UNTIL ALL WORK IS COMPLETE AND ALL AREAS HAVE BEEN STABILIZED. THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE ONLY UPON THE APPROVAL OF THE CONSERVATION COMMISSION.

6. EROSION AND SEDIMENTATION CONTROL DEVICES, SUCH AS CHECK DAMS, SEDIMENT BASINS, ETC. ARE TO BE INSTALLED AS SHOWN ON THE SITE DEVELOPMENT PLANS WITH ASSOCIATED DETAILS. AS APPROPRIATE. 7. CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE

SEDIMENTATION PLUMES TO OCCUR ON OR SURROUNDING THE PROJECT. SHOULD SEDIMENT EXTEND BEYOND THE EROSION CONTROL BARRIERS, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL MITIGATION MEASURES TO PREVENT FURTHER SEDIMENTATION.

8. NO MATERIAL SUBJECT TO EROSION SHALL BE STOCKPILED OVERNIGHT WITHIN 100 FEET OF ANY WETLAND AREAS WITHOUT PROPER EROSION AND SEDIMENTATION DEVICES IN PLACE.

9. EQUIPMENT SHALL NOT BE PARKED WITHIN WETLAND OR BUFFER AREAS EXCEPT DURING ACTUAL OPERATIONS REQUIRING SAID EQUIPMENT. 10. ACCUMULATED SEDIMENT ALONG EROSION CONTROL BARRIERS SHALL BE PERIODICALLY REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED BY THE CONSERVATION COMMISSION OR AS DIRECTED BY THE

#### **EROSION CONTROL METHODS:**

1. IT IS OF GREAT IMPORTANCE THAT CONCENTRATION OF RUNOFF BE AVOIDED IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.

THE PRIMARY EROSION CONTROL METHOD TO BE UTILIZED IS TO LIMIT THE AREA OF DISTURBANCE DURING CONSTRUCTION ACTIVITIES. THIS IS ACCOMPLISHED BY PROMPT STABILIZATION OF DISTURBED AREAS UPON COMPLETION OF SEQUENCES OF CONSTRUCTION.

3. EROSION AND SEDIMENT CONTROL DEVICES SUCH AS HAY BALES, SILT FENCES, DIVERSION BERMS, ETC. SHALL BE UTILIZED FOR THE PROTECTION OF THE AREAS BEYOND THE LIMIT OF CONSTRUCTION. **DEMARCATION OF SENSITIVE AREAS:** 

1. IT IS RECOMMEND THAT BARRIERS BE PLACED ON THE SITE TO CONTROL THE LIMITS OF THE DISTURBANCE. AS AN EXAMPLE, HAY BALE BARRIERS PROVIDE SUCH DEMARCATION AND OTHER METHODS SUCH AS SNOW FENCING, ROPE WITH FLAGGING, ETC. MAY BE UTILIZED. CARE SHOULD BE TAKEN IN THE OPERATION OF EQUIPMENT, SUCH THAT ONLY THE MINIMUM AREA NEEDED TO BE ALTERED IS DISTURBED.

1. ACCESS TO THE SITE SHALL BE MADE IN THE AREA OF A PERMANENT DRIVEWAY OR ROADWAY UNLESS DOING SO WOULD RESULT IN A TRAFFIC

2. AN AREA OF CRUSHED STONE SHALL BE PLACED AT THE DRIVEWAY ENTRANCE TO INSURE THAT MUD IS NOT TRACKED ONTO THE EXISTING ROAD (SEE CONSTRUCTION ENTRANCE DETAIL). IF MUD IS INADVERTENTLY TRACKED ONTO THE ROAD, IT SHOULD BE PROMPTLY

LABORERS VEHICLES SHALL BE PARKED IN A DESIGNATED AREA AS TO MINIMIZE DISTURBED SURFACES AND TO INSURE THAT RUTS ARE NOT CREATED AND WHICH COULD CARRY WATER TO A WETLAND OR OTHER

4. SUITABLE MEASURES SHALL BE TAKEN TO INSURE THAT LARGE DELIVERY TRUCKS SERVICING THE SITE DO NOT DAMAGE TO AREAS OF EXISTING VEGETATION OR CAUSE DISTURBANCE TO STABILIZED AREAS.

#### **ORDERLY CONSTRUCTION PROCEDURES:**

1. THE CONTRACTOR SHALL PERFORM SITE CONSTRUCTION IN A MANNER WHICH WILL INSURE THE STABILIZATION OF AREAS IN PROXIMITY OF OR TRIBUTARY TO WETLAND AREAS AS SOON AS POSSIBLE

2. EROSION CONTROL DEVICES SUCH AS HAY BALE BARRIERS, SILT FENCES AND MULCH SHALL BE BROUGHT TO THE SITE AND STOCKPILED PRIOR TO INITIATING CONSTRUCTION.

3. THE CONTRACTOR SHALL PROVIDE AREAS FOR THE TEMPORARY STORAGE OF CONSTRUCTION DEBRIS. CONSTRUCTION DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE FOR AN EXTENDED PERIOD OF TIME.

1. IF DRAINAGE PIPES OR SWALES ARE TO BE INSTALLED. THEY SHALL BE CONSTRUCTED FROM DOWNSTREAM UP AND CONSTRUCTION SHALL INCLUDE THE PLACEMENT OF OUTFALL RIPRAP AND OTHER MITIGATIVE MEASURES SHOWN ON THE PLAN.

2. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. HAY BALES OR OTHER SUITABLE METHODS TO ENTRAP SEDIMENT SHALL BE PLACED

3. THE TOE OF EMBANKMENTS SHALL BE STABILIZED IMMEDIATELY, MULCHED AND TACKED DOWN BY SUITABLE MEANS. 4. IF THE PROPOSED ROADWAY IS NOT PAVED IMMEDIATELY AFTER THE

INSTALLATION OF DRAINAGE STRUCTURES, HAY BALES SHALL BE PLACED TO PROTECT THE INTEGRITY OF THE STRUCTURES.

#### **BUILDING CONSTRUCTION:**

DOWNSTREAM.

(2) INCHES OF SOIL.

1. THE LOT SHOULD BE KEPT LITTER FREE.

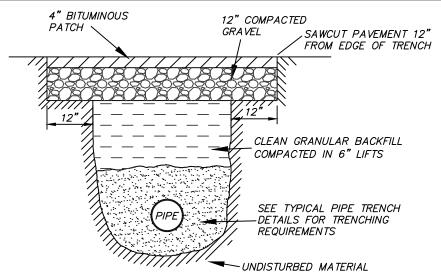
THESE PRODUCTS SHALL BE REMOVED FROM THE SITE EACH EVENING AND RETURNED THE FOLLOWING DAY. 3. BURIAL OF MATERIALS OR CONSTRUCTION DEBRIS IS PROHIBITED.

NO FUELS, SOLVENTS, PAINTS, ETC. SHALL BE STORED ON SITE.

4. PLASTERERS AND PAINTERS SHALL BE INFORMED THAT DISCHARGE OF LIQUIDS INTO A WETLAND OR RESOURCE AREA IS PROHIBITED. **LANDSCAPING:** 1. LANDSCAPING OF AREAS SHOULD OCCUR AS SOON AS POSSIBLE. 2. IF THF SEASON OR ADVERSE WEATHER CONDITIONS DO NOT PERMIT

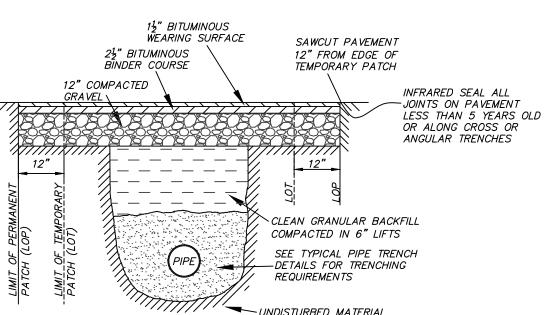
THE ESTABLISHMENT OF VEGETATION, TEMPORARY HAY MULCH, OR OTHER MEANS OF STABILIZATION SHALL BE PERFORMED. 3. USE OF HERBICIDES MAY BE SUBJECT TO OTHER REGULATIONS. 4. CARE SHOULD BE TAKEN WITH FERTILIZERS SUCH THAT THEY ARE NOT CARRIED TO A WETLAND OR SENSITIVE AREA.

5. TRUNKS OF TREES SHOULD NOT BE COVERED WITH MORE THAN TWO



AFTER BACKFILLING HAS BEEN COMPLETED AND SUB GRADE REESTABLISHED, A FOUR (4) INCH BITUMINOUS CONCRETE, TYPE I TEMPORARY PATCH SHALL BE INSTALLED AND MAINTAINED UNTIL A PERMANENT PATCH IS INSTALLED (SEE DETAIL).

TEMPORARY PATCH DETAIL NO SCALE



### **──** UNDISTURBED MATERIAL PERMANENT PATCH DETAIL

-OVERFLOW

INSTALLATION

DUMP STRAP

SILT SACK DETAIL

NO SCALE

2-1/2" BINDER COURSE

SUB-BASE MATERIAL

UNDISTURBED EARTH OR SUITABLE MATERIAL

COMPACTED TO 95% DRY DENSITY

TYPICAL PAVEMENT SECTIOI

(NO SCALE)

FULL DEPTH CONSTRUCTION AREAS

FRAME AND GRATE TO BE HEAVY DUTY BY— EAST JORDAN IRON WORKS OR APPROVED

EQUAL. ADJUST TO GRADE AS REQUIRED

26"x24" SQUARE

5"MIN.

**ECCENTRICALLY** 

I OCATED

OPENING.

GRANITE CURB INLET

(IF NEEDED)

1-1/2" TOP COURSE

SILT SACK

NO SCALE

POLYPROPYLENE

TEMPORARY INLET

SEDIMENT FILTER

TEMPORARY INLET SEDIMENT FILTER TO

INSTALLED ON ALL PAVED CATCH BASINS

OR STORM INLETS. INLET FILTER TO BE SIMILAR TO "SILTSACK" AS

MANUFACTURED BY ATLANTIC

TRENCH PATCHING NOTES: 1) UPON COMPLETION OF THE TRENCH/UTILITY INSTALLATION WORK. AND ONLY AFTER REQUIRED BACKFILLING AND COMPACTION HAS BEEN ACHIEVED. SHALL ROAD PATCHING OPERATIONS BEGIN IN NO EVENT SHALL OPENINGS BE ALLOWED TO BE LEFT UN-PATCHED FOR MORE THAN FORTY-EIGHT (48) HOURS WITHOUT WRITTEN APPROVAL OF THE DEPARTMENT OF PUBLIC WORKS

2) ALL ROAD PATCHES SHALL BE PLACED PERPENDICULAR OR PARALLEL TO TRAFFIC FLOW. ANGULAR PATCHES ACROSS THE ROADWAY SHALL NOT BE PERMITTED WITHOUT DPW APPROVAL. ALL TRENCHES SHALL BE SAW-CUT TO PROVIDE A VERTICAL JOINT FOR PATCHING. 3) HOT PATCH SHALL BE USED AT ALL TIMES EXCEPT WHEN SEASONAL CONDITIONS WARRANT THE USE OF A TEMPORARY COLD PATCH.

4) IF A TEMPORARY PATCH IS USED, THE DPW SHALL BE NOTIFIED AS TO WHEN A PERMANENT PATCH IS TO BE PLACED. THE CONTRACTOR IS RESPONSIBLE UNTIL THE PERMANENT PATCH IS 5) TEMPORARY PATCHES SHALL BE MAINTAINED BY THE CONTRACTOR THROUGH ONE

WINTER-SPRING SEASON. PERMANENT PATCH WILL BE REQUIRED ON ALL TRENCHES AND SHALL BE WARRANTEED FOR A PERIOD OF ONE YEAR. 6) PERMANENT PATCHES IN A HEAVILY TRAVELED AREA, AS DETERMINED BY THE DPW, SHALL BE REINFORCED WITH A CONCRETE SLAB NO LESS THAN FIVE (5) INCHES THICK. CONSTRUCTION SHALL COMPLY WITH SECTION 430 OF THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF

7) TEMPORARY AND PERMANENT PATCHES SHALL BE NO LESS THAN FOUR (4) INCHES THICK OR

THE THICKNESS OF THE EXISTING PAVEMENT, WHICHEVER IS GREATER. 8) TEMPORARY AND PERMANENT PATCHES SHALL BE ROLLED AND COMPACTED TO MATCH THE ÉXISTING SURFACE IN A GOOD WORKMANLIKE MANNER AND ALL ABUTTING SURFACES SEALED. 9) PERMANENT PATCHES WILL BE MAINTAINED BY THE CONTRACTOR FOR A PERIOD OF NINETY (90) DAYS AT WHICH TIME THE PATCH WILL BE FINALIZED BY THE INFRARED METHOD OF PATCHING. NO INFRARED PATCHING WILL BE REQUIRED ON ANY PAVEMENT THAT IS FIVE (5) YEARS OLD OR GREATER.

PUBLIC WORKS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.

PVC WYE ANGLED 45

DUMP STRAPS

**EXPANSION** 

RESTRAINT /4" NYLON

*WASHERS)* 

FINISHED PAVEMENT

WORKS OR EQUAL)

`OUTLET PIPE (12" MIN.)

OR 26"x34"

BRICK & MORTAR MAY BE USED FOR GRADE

ADJUSTMENT MINIMUM TWO COURSES — MAXIMUM

FIVE COURSES FRAME TO BE SET IN FULL BED OF

TOP SLAB TO BE STEEL REINFORCED TO MEET OR

LAST IRON CATCH BASIN TRAP (EAST JORDAN IRON

CATCH BASIN TO BE PRECAST REINFORCED

60" DIA. 0.15 SQ.IN. VERTICAL FT.

RCP UNLESS OTHERWISE NOTED.

STEEL REINFORCEMENT TO CONFORM TO A.S.T.M.

A185 AREA 48" DIA., 0.12 SQ.IN. VERTICAL FT. AREA

CONCRETE TO HAVE A MINIMUM COMPRESSIVE

BASE SECTION TO BE MONOLITHIC CAST.

5. JOINT SEALANT SHALL BE PRE-FORMED BUTYL RUBBER MASTIC TYPE SEAL THAT COMPLIES WITH

AASHTO SPECIFICATION M-198 OR SYNTHETIC RUBBER

GASKET THAT COMPLIES WITH ASTM C443 OR C361.

6. LEADERS FROM ALL CATCHBASINS SHALL BE 12"

STRENGTH OF 4,000 P.S.I., MANUFACTURER TO CERTIFY.

EXCEED H-20 LOADING OPENING, SQUARE: 26"x24"

BAG DETAIL

*12" GRAVEL BASE* 

12" RCP LEADER

**UNDISTURBED** 

WITH GRANITE CURB INLET

NO SCALE

MATERIAL

10) ALL MATERIALS AND CONSTRUCTION METHODS MUST MEET THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR HIGHWAYS AND 11) THE REPAINTING OF TRAFFIC LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TÓWN SHALL BE NOTIFIED PRIOR TO THE PAINTING OF ANY NEW TRAFFIC MARKINGS. 12) THE CONTRACTOR SHOULD EXERCISE EXTREME CARE TO PREVENT THE DAMAGE TO MAJOR RÓOT SYSTEMS OF TREES. 13) WHERE MANHOLES ARE TO BE PLACED IN THE HARDENED SURFACE. ALL MANHOLE COVERS SHALL BE SET IN CONCRETE COLLARS TO WITHIN FOUR (4) INCHES OF THE EXISTING SURFACE. A PATCH OF CLASS I BITUMINOUS PAVEMENT TYPE I SHALL BE PLACED OVER THE CONCRETE COLLAR TO A LEVEL WITH THE PAVEMENT GRADE WHEN SATISFACTORILY COMPACTED. 14) WITH THE EXCEPTION OF EMERGENCY WORK, NO EXCAVATION SHALL BE PERMITTED FROM DECEMBER 1 TO APRIL 1. WORK WITHIN THIS PERIOD MAY BE ALLOWED AT THE DISCRETION OF

EXISTING ROAD

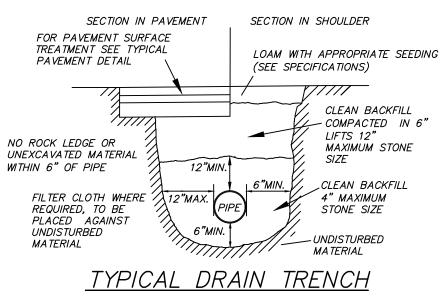
**PROVIDE** 

6"MIN.

CROWN

ALL SEWER LATERAL PIPES TO BE SDR 35 PVC WITH

HALF SECTION IN PAVEMENT HALF SECTION IN SHOULDER - 4" MINIMUM LOAM WITH FOR PAVEMENT SURFACE TREATMENT APPROPRIATE SEEDING SEE TYPICAL RESURFACING DETAIL (SEE SPECIFICATIONS) (THIS SHEET) — - CLEAN BACKFILL COMPACTED 12" OVERCUT IN-IN 6" LIFTS PAVED AREAS SELECT GRANULAR MATERIAL COMPACTED IN 6" LIFTS 12" ABOVE PIPE (MINIMUM) NO STONES LARGER THAN 2" TO 12" MAX. BE WITHIN 6" OF PIPE NO ROCK LEDGE OR UNEXCAVATED MATERIAL TO TO BE PLACED BE WITHIN 6" OF PIPE ~ 3/4" COMPACTED CRUSHED UNDISTURBED MATERIAL STONE TO SPRINGLINE OF UNDISTURBED MATERIAL



(REINFORCED CONCRETE PIPE ONLY) NO SCALE

1"-3" ANGULAR CRUSHED STONE

(REPLENISH AS NEEDED)

(PROVIDE CONSTRUCTION ENTRANCE FOR FULL WIDTH OF OPENING)

THE PURPOSE OF THIS CONSTRUCTION ENTRANCE IS TO REMOVE MUD FROM CONSTRUCTION VEHICLES. CONTRACTOR TO REPLENISH STONE AS NEEDED TO

CONSTRUCTION TRACKING PAD

NO SCALE

MAINTAIN EFFECTIVENESS.

5' MIN 5' MIN EXISTING/PROPOSED SEWER MAIN EQUAL FULL UNCUT LENGTH OF PIPE <u>VIEW ALONG SEWER MAIN</u> EXISTING/PROPOSED WATER MAIL NOTE: WHEN WATER CROSSES
OVER SEWER MAIN, IF SEPARATION
IS LESS THAN 18" PROVIDE A 2" THICK CONCRETE SLAB POUR ACROSS TOP OF SEWER TRENCH. SEWER MAIN <u>VIEW ALONG WATER MAIN</u> *WATER/SEWER CROSSING* <u>DETAIL</u> NO SCALE APPROVAL UNDER THE SUBDIVISION CONTROL LAW *IS REQUIRED* WAKEFIELD PLANNING BOARD

NOTE: WHEN WATER CROSSES ——OVER SEWER MAIN, IF SEPARATION

ACROSS TOP OF SEWER TRENCH

- WATER MAIN

THE TOWN CLERK OF THE TOWN OF WAKEFIELD, HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SUCH NOTICE.

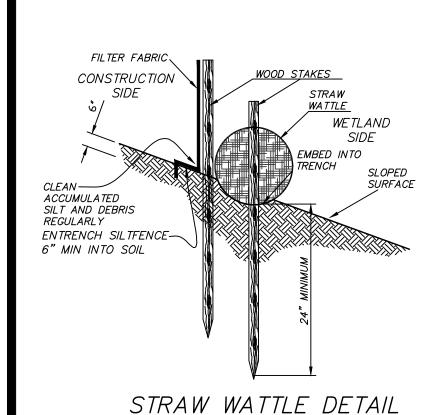
TOWN CLERK

SITE SIDE

DATE

# DEFINITIVE PLAN

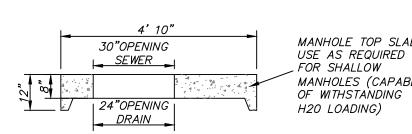
	NO.	DATE	REVISIONS	BY
	1	09/9/19	TOWN REVIEW	WDH
	2	9/23/19	TOWN REVIEW	WDH
	3	10/31/19	BOARD/HEARING COMMENTS	WDH
	4	01/03/20	DRAINAGE EASEMENTS	WDH
	5	02/03/20	BOARD/HEARING COMMENTS	CMA



NO SCALE

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

DAVID J. LeROY, P.L.S. 47416 DATE



TRAME AND COVER TO BE EAST JORDAN IRON WORKS APPROVED EQUAL WITH DIAMOND PATTERN AND <u>LETTERING "SEWER" OR "DRAIN"</u> (H-20 LOADING). O GRADE AS REQUIRED CONTRACTOR T VERIFY IN-THE-FIELD THAT THE PROPOSED FRAME AND COVER WILL MATCH THOSE UTILIZED BY THE TOWN.

RED BRICKS MAY BE USED FOR GRADE ADJUSTMENT (MINIMUM TWO COURSES. MAXIMUM FIVE COURSE) FRAME TO BE SET IN FULL BED OF MORTAR *30*" л*2' MAX. (GROUND*` TO FIRST STEP) 48"DIA. UNLESS SPECIFIED <u>OTHERWISE</u>

\_\_\_MANHOLE BRICK MASONRY INVERT (TO CROWN OF PIPE)

MANHOLE TO BE PRECAST CONCRETE AND **WATERTIGHT** 

BASE SECTION WILL BE CAST MONOLITHIC. TWO (2)

MANHOLE DESIGN SHALL CONFORM TO "PRECAST DESIGNATION C478, LATEST REVISION." JOINT SEALANT SHALL BE PRE-FORMED BUTYL

HEIGHT OF BRICK MASONRY INVERT CHANNEL TO BE BROUGHT UP TO A LEVEL EQUAL TO 2/3 DIAMETER

SEE MANHOLE CONNECTION DETAIL FLOOR OF STRUCTURE TO BE HEADERS LAID FLAT. PITCH TOWARDS OUTLET FOR POSITIVE DRAINAGE. STUB (TYP.) 2.0' MAX.

CONCRETE FILL 3,000 P.S.I. AIR PROVIDE 3/4" COMPACTED CRUSHED ENTRAINED CONCRETE STONE BEDDING EXTENDED 12" BEYOND UNDISTURBED MATERIAL STRUCTURE (MIN. 6" DEPTH)

INVERTED ARCH WITH

∼BRICKS LAID ON

TYPICAL PRECAST MANHOLE (SEWER OR DRAIN - USE APPROPRIATE COVER)

NO SCALE



REINFORCING A.S.T.M. A185 AREA 48" DIA. 0.12 SQ.IN. VERTICAL FT. AREA 60" DIA. 0.15 SQ.IN. VERTICAL FT.

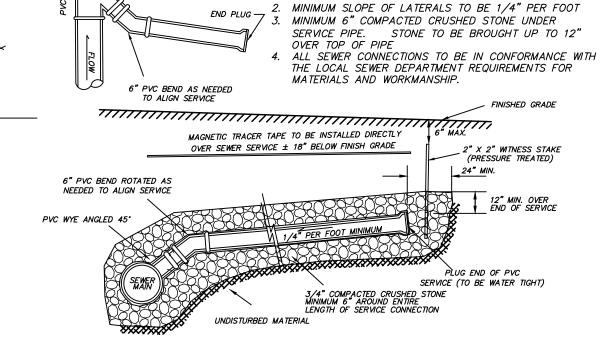
CONCRETE COMPRESSIVE STRENGTH 4,000 P.S.I. MANHOLE STEPS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC.

COATS BITUMINASTIC WATERPROOF COATING AROUND ENTIRE EXTERIOR SURFACES OF MANHOLE REINFORCED CONCRETE MANHOLE SECTIONS— A.S.T.M.

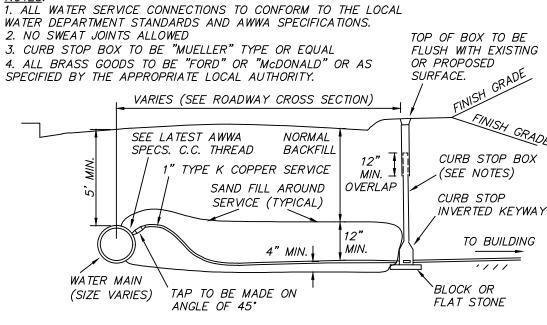
RUBBER MASTIC TYPE SEAL THAT COMPLIES WITH AASHTO SPECIFICATION M-198 OR SYNTHETIC RUBBER GASKET THAT COMPLIES WITH ASTM C443

PROVIDE 3/4" COMPACTED CRUSHED STONE BEDDING EXTENDED 12" BEYOND CATCH

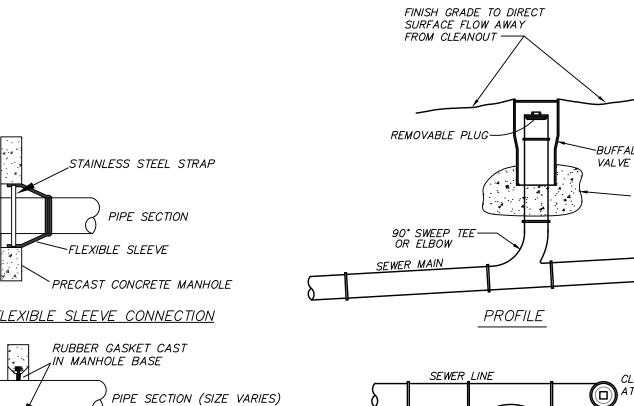
BASIN (MINIMUM 6" DEPTH) TYPICAL PRECAST CATCH BASIN



SEWER SERVICE CONNECTION DETAIL NO SCALE

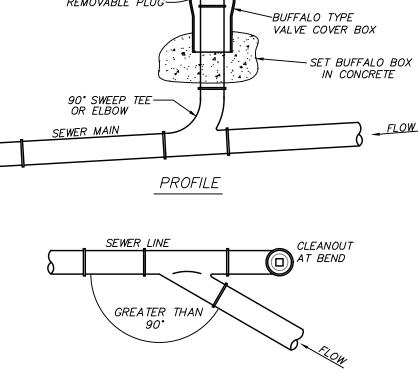


TYPICAL WATER SERVICE CONNECTION NO SCALE



FLEXIBLE SLEEVE CONNECTION PRECAST CONCRETE MANHOLE COMPRESSION GASKET CONNECTION

NOTE: PIPE OPENINGS TO BE FACTORY PRECAST MANHOLE CONNECTION DETAIL NO SCALE



SEWER RISER AND CLEANOUT NO SCALE

PLAN VIEW

www.hanniganengineering.com CONSTRUCTION DETAILS WAKEFIELD, MASSACHUSETTS PREPARED FOR:

(978) 534-1234 (T)

CAROL BODURTHA HANNIGAN 11 OSSIPEE LANE WAKEFIELD, MASSACHUSETTS TEL: (781) 246-4969

**IHANNIGAN** 

8 Monument Square

ENGINEERING, INC.

CIVIL ENGINEERS & LAND SURVEYORS

Leominster, Massachusetts 01453

SCALE: NA CALC: CMA/WDH DRWN: CMA/WDH APPD: WDH CHKD: WDH **DATE:** MAY 6, 2019 **FB**: 42–110 JOB NO: 2035 SRV: JEF TAB: (8-9) DET | SHEET 9 OF 10 | PLAN NO:C-12-3

# STORMTECH GENERAL NOTES INSTALLATION.

1. STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM 2. OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO

SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION 2.4 THE CHAMBER SHALL BE OPEN-BOTTOMED. CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM CORRUGATION JOINT SYSTEM TO ALLOW CHAMBER ROWS OF ALMOST INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 1-888-892-2694 TO SPEAK TO A TECHNICAL SYSTEM SHALL BE EFFECTIVE WHILE ALLOWING A CHAMBER TO BE SERVICE REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE TRIMMED TO SHORTEN ITS OVERALL LENGTH. A COPY OF OUR INSTALLATION INSTRUCTIONS.

3. STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES. 4. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE

DESIGN ENGINEER. 5. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS. 6. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST 2.8 THE CHAMBER SHALL HAVE TWO ORIFICES NEAR ITS TOP TO 7. BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AND EXTERIOR. AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.

8. THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE 2.11 THE CHAMBER SHALL HAVE A CIRCULAR. INDENTED. FLAT AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR SURFACE ON THE TOP OF THE CHAMBER FOR AN OPTIONAL 4-INCH IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING 2.12 THE CHAMBER SHALL BE ANALYZED AND DESIGNED USING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.

9. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING DEPTH OF FILL. ENGINEER'S SPECIFICATIONS.

10. STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL STORMTECH AT 1-888-892-2694 OR VISIT WWW.STORMTECH.COM. STORMTECH PRODUCT SPECIFICATIONS

1.1 STORMTECH CHAMBERS ARE DESIGNED TO CONTROL STORMWATER RUNOFF. AS A SUBSURFACE RETENTION SYSTEM, STORMTECH CHAMBERS RETAIN AND ALLOW EFFECTIVE INFILTRATION OF WATER CHAMBERS DETAIN AND ALLOW FOR THE METERED FLOW OF WATER TO INTO THE SOIL. AS A SUBSURFACE DETENTION SYSTEM, STORMTECH AN OUTFALL.

2.0 CHAMBER PARAMETERS

RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING (ESCR), AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH 3.5 THE PRIMARY FACE OF AN END CAP SHALL BE CURVED HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND

2.2 THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-740 SHALL BE 30.0 INCHES TALL, 51.0 INCHES WIDE AND 90.7 INCHES LONG. THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-310 SHALL BE 16.0 INCHES TALL, 34.0 INCHES WIDE AND 90.7 INCHES LONG. THE INSTALLED LENGTH OF A JOINED CHAMBER SHALL

BE 85.4 INCHES. 2.3 THE CHAMBER SHALL HAVE A CONTINUOUSLY CURVED SECTION

2.5 THE CHAMBER SHALL INCORPORATE AN OVERLAPPING ANY LENGTH TO BE CREATED. THE OVERLAPPING CORRUGATION JOINT

THE NOMINAL STORAGE VOLUME OF A JOINED STORMTECH SC-740 CHAMBER SHALL BE 74.9 CUBIC FEET PER CHAMBER WHEN VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 2.2 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED. THE NOMINAL STORAGE VOLUME OF AN INSTALLED STORMTECH SC-310 CHAMBER SHALL BE 31.0 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 1.3 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED.

THÉ CHAMBER SHALL HAVE FORTY—EIGHT ORIFICES PENETRATING THE SIDEWALLS TO ALLOW FOR LATERAL CONVEYANCE OF WATER. CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS. ALLOW FOR EQUALIZATION OF AIR PRESSURE BETWEEN ITS INTERIOR

> 2.9 THE CHAMBER SHALL HAVE BOTH OF ITS ENDS OPEN TO ALLOW FOR UNIMPEDED HYDRAULIC FLOWS AND VISUAL INSPECTIONS DOWN A ROW'S ENTIRE LENGTH.

> 2.10 THE CHAMBER SHALL HAVE 14 CORRUGATIONS.

INSPECTION PORT OR CLEAN-OUT. AASHTO METHODS FOR THERMOPLASTIC CULVERTS CONTAINED IN THE TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO LRFD BRIDGE DESIGN SPECIFICATIONS. 2ND EDITION. INCLUDING INTERIM SPECIFICATIONS THROUGH 2001. DESIGN LIVE LOAD SHALL BE THE AASHTO HS20 TRUCK. DESIGN SHALL CONSIDER EARTH AND LIVE LOADS AS APPROPRIATE FOR THE MINIMUM TO MAXIMUM SPECIFIED

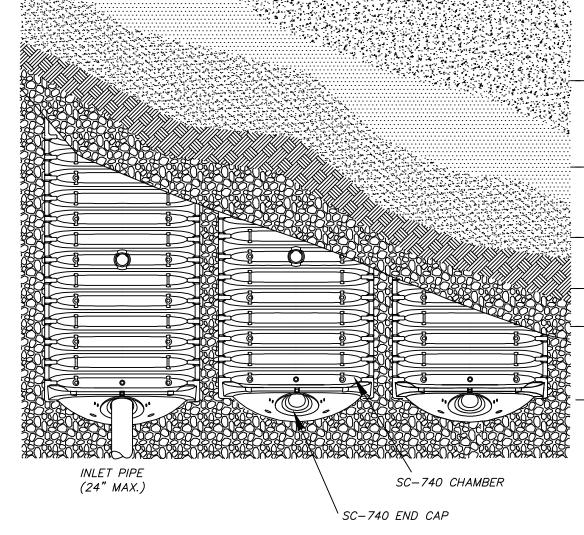
ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN 2.13 THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001: 2000 CERTIFIED FACILITY.

3.0 END CAP PARAMETERS

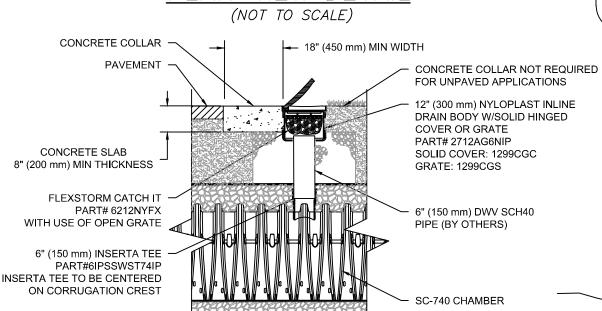
3.1 THE END CAP SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING, AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE. 3.2 THE END CAP SHALL BE DESIGNED TO FIT INTO ANY CORRUGATION OF A CHAMBER, WHICH ALLOWS: CAPPING A CHAMBER THAT HAS ITS LENGTH TRIMMED; SEGMENTING ROWS INTO STORAGE 3.3 THE END CAP SHALL HAVE SAW GUIDES TO ALLOW EASY

CUTTING FOR VARIOUS DIAMETERS OF PIPE THAT MAY BE USED TO 2.1 THE CHAMBER SHALL BE INJECTION MOLDED OF POLYPROPYLENE 3.4 THE END CAP SHALL HAVE EXCESS STRUCTURAL ADEQUACIES TO ALLOW CUTTING AN ORIFICE OF ANY SIZE AT ANY INVERT ELEVATION. OUTWARD TO RESIST HORIZONTAL LOADS GENERATED NEAR THE EDGES OF BEDS.

3.6 THE END CAP SHALL BE MANUFACTURED IN AN ISO 9001: 2000 CERTIFIED FACILITY.







SC-740 6" INSPECTION PORT DETAIL

VARY. SEE SITE PLAN FOR LOCATIONS, SIZE AND SHAPE

6"± PONDING DEPTH

nenenenenenene

RARARARA

(PROFILE VIEW)

CONNECT TO

NEAREST

DRAIN

*AVAILABLE* 

(OPTIONAL)

- PAVEMENT

COMPACTED FILL PER

STORMTECH'S TABLE OF

- AASHTO M288 CLASS 2

NON-WOVEN GEOTEXTILE

STONE BACKFILL

ACCEPTABLE FILL MATERIALS\*

6" MIN. DEPTH OF 1 — 2—INCH

WASHED, CRUSHED, ANGULAR

-1 -2−INCH WASHED, CRUSHED,

TO BE DETERMINED BY

DESIGN ENGINEER\*

ANGULAR STONE BENEATH AND

AROUND CHAMBER BED. DEPTH

#### REFER TO PLANTING LIST FOR ACCEPTABLE PLANT SPECIES OPTIONAL 6" PERFORATED PVC UNDFRDRAIN (PLAN VIEW) SIZE AND SHAPE OF RAIN GARDENS

OUTLET PIPE

PLANTING LIST AND NOTES APPROXIMATE SPECIES MIX

RED CHOKEBERRY

SPINDLE TREE

WITCH HAZEL

WINTERRERRY

**NANNYBERRY** 

(TYPICAL SECTION)

*INKBERRY* 

REDTOP

LIMIT OF GRAVEL PRISMOID

BLUEJOINT SWEET PEPPERBUSH BROOMSEDGE RED OSLER DOGWOOD FOX SFDGF ENGLISH IVY COMMON ST. JOHN'S WORT BEADFERN

LENGTH = 32 FT

BED LENGTH

CHAMBERS TO BE CENTRALLY LOCATED WITHIN STONE PRISMOID

CREEPING JUNIPER **SPICFBUSH** TUFTED HAIRGRASS **BAYBERRY** NORTHERN WILD RAISIN MANNAGRASS ARROW-WOOD BIRDSFOOT-TREFOLL NINEBERK RED MAPLE JAPANESE PACHYSANDRA SWITCH GRASS **SWEETSPIRE** SHADBUSH

GRAY BIRCH WHITE ASH GREEN ASH MALDENHAIR TREE HONEYLOCUST EASTERN RED CEDAR SWEET GUM LARGE PERIWINKLE COMMON PERIWINKLE

-INLET PIPE

—YARD DRAIN

(SEE DETAIL)

LONDON PLANE-TREE SYCAMORE EASTERN COTTONWOOD SWAMP WHITE OAK SCARLET OAK BUR OAK PINE OAK WILLOW OAK BALD CYPRESS

BLACK GUM

1½" DOUBLE

WASHED CRUSHED

PROVIDE 1-1/2" DOUBLE

WASHED CRUSHED STONE ~

AROUND BASIN (12" MIN)

UNDISTURBED<sup>-</sup>

STONE TRENCH 2'

WIDE x 6" DEEP

IS REQUIRED WAKEFIELD PLANNING BOARD

DA TE:

WEEP HOLES

4" ABOVE ``

@ 30° AND

LIGHT DUTY A.D.S. YARD INLET

NO SCALE

APPROVAL UNDER THE

SUBDIVISION CONTROL LAW

BASE

ADS #1524 CATCH BASIN

(LIGHT DUTY)

<u>1/2"PER FT</u>

LOAM & SEED

18" DIA. CTB FRAME & GRATE

1½" DOUBLE WASHED CRUSHED STONE

TRENCH - 2' WIDE x 6" DEEP NOTE:

STONE WITHIN 15' OF CATCH BASIN

FLOW

6" DIA. SCH \ 40 PVC (SOLID)

-PROVIDE 13" DOUBLE

\_, THE TOWN CLERK OF

(978) 534-1234 (T)

PLAN N0:C-12-3

----UNDISTURBED

EARTH

WASHED CRUSHED STONE

AROUND BASIN (12" MIN)

LOAM & SEED

FILL DRAIN LINE TRENCH WITH

RIVER BIRCH

<u>NOTES:</u>

HÄRDWOOD

MULCH

-2.5'- 4'±

PLANTING SOIL

PERFORATED

PVC PIPE

→ 12" SEPARATION

6" INSPECTION PORT

(SEE DETAIL)

1. THE PLANTING PLAN SHALL INCLUDE A MIX OF HERBACEOUS PERENNIALS, SHRUBS AND (IF CONDITIONS PERMIT) UNDERSTORY TREES THAT CAN TOLERATE INTERMITTENT PONDING, OCCASIONAL SALINE CONDITIONS DUE TO ROAD SALT, AND EXTENDED DRY PERIODS.

COMMON JUNIPER

-*SC-740 CHAMBERS (4)* 

(SET LEVEL)

12" SEPARATION

2. INVASIVE OR EXOTIC SPECIES ARE PROHIBITIED

OPTIONAL 6"

~PERFORATED

RESIDENTIAL RAIN GARDEN DETAIL

(NO SCALE)

3. REFER TO MASSACHUSETTS STORMWATER HANDBOOK (VOLUME 2, CHAPTER 2) FOR ADDITIONAL INFORMATION REGARDING PLANT SPECIES SUITABLE FOR USE IN BIORETENTION.

#### PLANTING SOIL NOTES

NOT EXCEED 5%.

1. THE SOIL MIX SHALL BE A MIXTURE OF SAND COMPOST AND SOIL AS FOLLOWS: 40% SAND, 20-30% TOPSOIL AND 30-40% COMPOST. 2. THE SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2". CLAY CONTENT SHALL

3. SOIL PH SHOULD BE BETWEEN 5.5-6.5

SHALL NOT CONTAIN BIOSOLIDS.

4. USE SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.

5. THE SAND COMPONENT SHALL BE GRAVELLY SAND THAT MEETS ASTM D422.

6. THE TOPSOIL COMPONENT SAHLL BE A SANDY LOAM, LOAMY SAND 7. THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD

WASTE IN ACCORDANCE WITH MASS DEP GUIDELINES. THE COMPOST

TOWN CLERK DATE

# DEFINITIVE PLAN

THE TOWN OF WAKEFIELD, HEREBY CERTIFY THAT

THE PLANNING BOARD HAS BEEN RECEIVED AND

RECORDED AT THIS OFFICE AND NO APPEAL WAS

RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SUCH NOTICE.

THE NOTICE OF APPROVAL OF THIS PLAN BY

NO.	DATE	REVISIONS	BY
1	09/9/19	TOWN REVIEW	WDH
2	9/23/19	TOWN REVIEW	WDH
3	10/31/19	BOARD/HEARING COMMENTS	WDH
4	01/03/20	DRAINAGE EASEMENTS	WDH
5	02/03/20	BOARD/HEARING COMMENTS	CMA

#### BLACK REINFORCED RUBBER RETAINING NORMAL SHAPE HOSE AND SECURE TREE (LEADERS RETAINED) ABOVE WRAPPED FIRST BRANCH MAINTAIN ORIGINAL SOIL LINE WHEN FILLING GUY WIRE & OR SLIGHTLY RAISED *TURNBUCKLE* – 4" DEPTH BARK MULCH ~ - CREATE 4" BERM AROUND NOTCHED GUY ENTIRE BASE CAPABLE OF STAKE 3 EA./TREE HOLDING 4" WATER DEPTH -120° RADIAL -OPEN BURLAP (OUT) — FROM TOP OF ROOT BALL WRAP TREE TO ABOVE FIRST EXISTING SUBGRADE BRANCH -PLANTING SOIL: 1/2 LOAM,-1/4 SAND, 1/4 PEAT MOSS COMPACTED PEDESTAL -

DECIDUOUS TREE PLANTING DETAIL NO SCALE

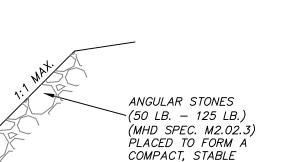
I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

DAVID J. LeROY, P.L.S. 47416



SHRUB PLANTING DETAIL

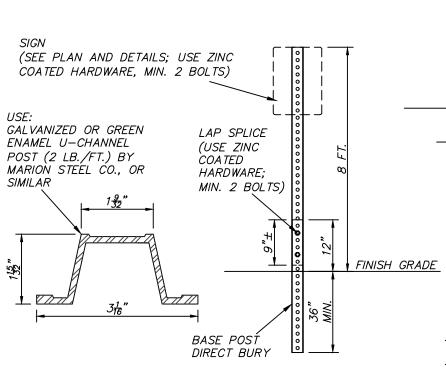
NO SCALE



CHANNEL

RIP-RAP SWALE DETAIL

SWALE DEPTH (12" AVERAGE)



SIGN POST DETAIL (NO SCALE)

DRAINAGE PIPING NOTE: PIPING REQUIRES MANUFACTURE REVIEW AND APPROVAL. PRIOR TO CONSTRUCTION, CONTRACTOR TO PROVIDE DOCUMENTATION OF COMPLIANCE WITH MANUFACTURE REQUIREMENTS FOR DESIGN AND INSTALLATION AS DEPICTED ON THESE PLANS. CERTIFICATIONS PROVIDED ON THESE PLANS ARE PROVIDED RELATIVE TO VOLUMETRIC CAPACITY OF PIPE AND STONE FOR DRAINAGE ANALYSIS AND ARE NOT INTENDED NOR IMPLIED TO CERTIFY STRUCTURAL CAPACITY OF ANY ELEMENT OF THE UNDERGROUND DRAINAGE FINISH GRADE=134.0 (HIGH) FINISH GRADE=133.7± (LOW) 12" PVC OUTLET PROVIDE GEOTEXTILE FABRIC OVER TOP STONE LAYER FOR ENTIRE SYSTEM. TOP STONE=132.7± TOP STONE=132.7± OUTSIDE TOP=132.18 OUTSIDE TOP=132.18 10" HDPE OUTLET PIPE INV=131.26 — 1" TO 2" DOUBLE WASHED — CRUSHED STONE WITHIN ENTIRE UNDERGROUND STORAGE AREA. SC-740 CHAMBERS (SET LEVEL) BOTTOM CHAMBER=129.68 <u>UNDERGROUND STORAGE AREA #1</u> CROSS SECTION - SEE SITE PLAN

DRAINAGE PIPING NOTE: PIPING REQUIRES MANUFACTURE REVIEW AND APPROVAL. PRIOR TO CONSTRUCTION, CONTRACTOR TO PROVIDE DOCUMENTATION OF COMPLIANCE WITH MANUFACTURE REQUIREMENTS FOR DESIGN AND INSTALLATION AS DEPICTED ON THESE PLANS. CERTIFICATIONS PROVIDED ON THESE PLANS ARE PROVIDED RELATIVE TO VOLUMETRIC CAPACITY OF PIPE AND STONE FOR DRAINAGE ANALYSIS AND ARE NOT INTENDED NOR IMPLIED TO CERTIFY STRUCTURAL CAPACITY OF ANY ELEMENT OF THE UNDERGROUND DRAINAGE SYSTEM. FINISH GRADE - SEE SITE PLAN FOR GRADING AND SURFACE TREATMENT FINISH GRADE=147.5 (HIGH) 10" PVC OUTLET -PROVIDE GEOTEXTILE FABRIC OVER TOP STONE LAYER FOR ENTIRE SYSTEM. TOP STONE=145.5± TOP STONE=145.5± OUTSIDE TOP=145.0± OUTSIDE TOP=145.0± 10" HDPE OUTLET PIPE — 1" TO 2" DOUBLE WASHED — CRUSHED STONE WITHIN ENTIRE UNDERGROUND STORAGE AREA. SC-740 CHAMBERS (SET LEVEL) BOTTOM CHAMBER=143.0± BASE STONE=142.50±

UNDERGROUND STORAGE AREA #2 CROSS SECTION - SEE SITE PLAN

PREPARED FOR: CAROL BODURTHA HANNIGAN 11 OSSIPEE LANE

**|HANNIGAN** 

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TAB: (8-9) DET | SHEET 10 OF 10

SCALE: NA DRWN: CMA/WDH CALC: CMA/WDH APPD: WDH CHKD: WDH DATE: MAY 6, 2019 FB: 42-110 JOB NO: 2035 SRV: JEF

www.hanniganengineering.com

CONSTRUCTION DETAILS

WAKEFIELD, MASSACHUSETTS