KELLY ENGINEERING GROUP, INC.
0 Campanelli Drive-Braintree-MA 02184 Phone 781 843 4333

Attachment 6 - Hanover Crossing Commercial Site Development Plans

SITE DEVELOPMENT PLANS

FOR

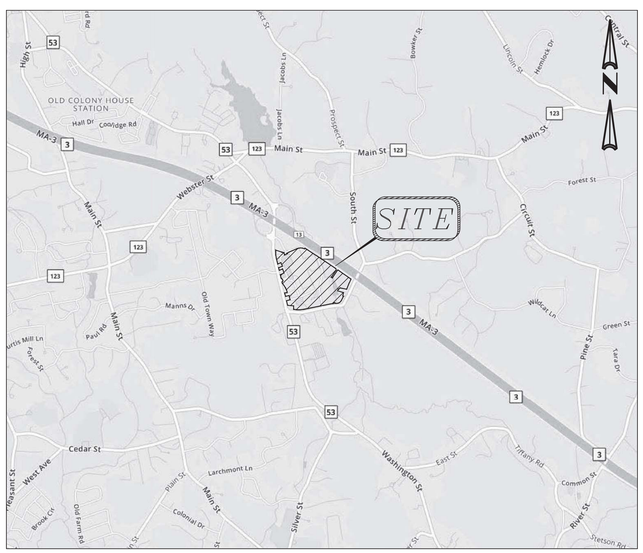
HANOVER CROSSING COMMERCIAL

1775 WASHINGTON STREET
HANOVER, MA

MAY 17, 2019

SHEET INDEX

SHEET No.	DESCRIPTION	LATEST REVISED DATE	CONSTRUCTION REVISIONS	SHEET No.	DESCRIPTION	LATEST REVISED DATE	CONSTRUCTION REVISIONS
1	COVER SHEET			19	GRADING PLAN (PART 3)		
2	OVERALL EXISTING CONDITIONS PLAN			20	GRADING PLAN (PART 4)		
3	OVERALL LAYOUT PLAN			21	GRADING PLAN (PART 5)		
4	EXISTING CONDITIONS PLAN (PART 1)			22	SEWER & DRAINAGE PLAN (PART 1)		
5	EXISTING CONDITIONS PLAN (PART 2)			23	SEWER & DRAINAGE PLAN (PART 2)		
6	EXISTING CONDITIONS PLAN (PART 3)			24	SEWER & DRAINAGE PLAN (PART 3)		
7	EXISTING CONDITIONS PLAN (PART 4)			25	SEWER & DRAINAGE PLAN (PART 4)		
8	DEMOLITION PLAN (PART 1)			26	SEWER & DRAINAGE PLAN (PART 5)		
9	DEMOLITION PLAN (PART 2)			27	UTILITY PLAN (PART 1)		
10	DEMOLITION PLAN (PART 3)			28	UTILITY PLAN (PART 2)		
11	DEMOLITION PLAN (PART 4)			29	UTILITY PLAN (PART 3)		
12	LAYOUT PLAN (PART 1)			30	UTILITY PLAN (PART 4)		
13	LAYOUT PLAN (PART 2)			31	UTILITY PLAN (PART 5)		
14	LAYOUT PLAN (PART 3)			32	DETAIL SHEET		
15	LAYOUT PLAN (PART 4)			33	DETAIL SHEET		
16	LAYOUT PLAN (PART 5)			34	DETAIL SHEET		
17	GRADING PLAN (PART 1)			35	DETAIL SHEET		
18	GRADING PLAN (PART 2)						



LOCATION MAP

HANOVER CROSSING

KELLY ENGINEERING GROUP
civil engineering consultants

OWNER/ APPLICANT:
PREP HANOVER REAL ESTATE LLC
1790 BONANZA DRIVE, SUITE 201
PARK CITY, UT 84060

CIVIL ENGINEER:
KELLY ENGINEERING GROUP, INC.
0 CAMPANELLI DRIVE
BRAINTREE, MA 02184

ARCHITECT:
RICHARD L. BOWEN + ASSOCIATES INC.
13000 SHAKER BLVD.
CLEVELAND, OH 44120

LANDSCAPE ARCHITECT:
HAWK DESIGN, INC.
P.O. BOX 1309
SANDWICH, MA 02563

WETLANDS SCIENTIST:
ECOTEC, INC.
102 GROVE STREET
WORCESTER, MA 01605

TRANSPORTATION ENGINEER:
VANASSE & ASSOCIATES, INC.
35 NEW ENGLAND BUSINESS CENTER DRIVE
SUITE 140
ANDOVER, MA 01810

Digitally signed by David Noel Kelly P.E.
DN: cn=David Noel Kelly P.E., o=Kelly Engineering Group, Inc., ou, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.28 12:06:41 -04'00'

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
No. 37942
REGISTERED PROFESSIONAL ENGINEER

SCALE	NA	DISK REF NO.	F:\P\2016-075
DATE	05/17/19	DRAWN BY	CJL
SHEET	1 of 35	CHKD BY	BGL
PLAN NO.	2016-075-TS00	APPD BY	DNK

1775 WASHINGTON STREET
HANOVER, MA

KELLY ENGINEERING GROUP
civil engineering consultants
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Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO. 1

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NOTE: SEE SHEET 5 OF 35 FOR NOTES AND SYMBOL LEGEND

SCALE			
1"= 100'			
DATE			
05/17/19	REV.	DATE	REVISION BY
SHEET			
2 of 35			
FILE #			
2016-075-EX00			
JOB #			
F:\P\2016-075			
DRAWN BY			
JPM			
CHKD BY			
SMH			
APPD BY			
SMH			

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

OVERALL EXISTING CONDITIONS PLAN

COMMONWEALTH OF MASSACHUSETTS
STEVEN N. HORSFALL
No. 41608
REGISTERED PROFESSIONAL LAND SURVEYOR

Steven Horsfall
2019.05.28
11:55:43
-04'00'

KELLY ENGINEERING GROUP
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Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO.
2

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ZONING LEGEND

ZONING DISTRICT: PLANNED SHOPPING CENTER DISTRICT (PSCD)
OVERLAY DISTRICTS: WIRELESS TELECOMMUNICATIONS DISTRICT
ADULT USE DISTRICT, FLOOD PLAIN PROTECTION DISTRICT
WATER RESOURCE PROTECTION DISTRICT (AQUIFER PROTECTION ZONE)

		REQUIRED (PSCD)	EXISTING	PROVIDED	COMPLIANCE
MIN. LOT AREA		44,000 S.F.	106.4 ACRES	SAME	YES
MIN. FRONTAGE		200'	4,500'+/-	SAME	YES
MIN YARD	FRONT	75'/50' (NOTE 1)	79'	50'	NA (NOTE 9)
	SIDE	15' (NOTE 2)	30.6'	SAME	YES
	REAR	25' (NOTE 2)	NA	NA	YES
MAX. STORIES		3	1	4	VARIANCE
MAX. HEIGHT		35'	<35'	≤53'	VARIANCE
LOT COVERAGE		70%	57% +/-	57% +/-	YES
LOT COVERAGE (AP)		15%	17% +/-	27% +/-	SPECIAL PERMIT
BUILDING COVERAGE		25%	18% +/-	15% +/-	YES
PARKING	TOTAL	3,486+/- (NOTE 3)	3,507+/-	3,703+/- (NOTE 3)	YES
	SIZE	9' X 20'	9'x 18'	9'x 18' (NOTE 3)	BY WAIVER
	HANDICAP	47	85	101	YES
Landscape Buffers	FRONT	20'	9' +/-	SAME	EXISTING NON CONFORMING
	SIDE	15'	0' +/-	1'	WAIVER (NOTE 8)
	REAR	15'	NA	NA	YES
AISLE WIDTH		24'	24'+/-	24' (NOTE 3)	YES
INTERIOR LANDSCAPING		5%	>5%	>5%	YES

VILLAGE PLANNED UNIT DEVELOPMENT REGULATIONS (6.11.0)

	REQUIRED (VPUD)	EXISTING	PROVIDED	COMPLIANCE
MIN. LOT AREA	25 ACRES	106.4 ACRES	SAME	YES
MIN. UPLAND AREA	15 ACRES	85 ACRES	SAME	YES
MIN. FRONTAGE	200'	4,500'+/-	SAME	YES
OPEN SPACE	20%	43%+/-	43%+/-	YES
BUFFER	50'	0'	0'/>50'	EXISTIN NON CONFORMING
SETBACK	100'	NA	NA (NOTE 4)	YES
MAX. % RESIDENTIAL	20%	NA	12%	YES
MAX. HEIGHT	35'/48' (NOTE 5)	<35'	≤53'+/-	VARIANCE
MAX. STORIES	3	1	4	VARIANCE
RATE OF DEVELOPMENT	1.5% TOTAL TOWN DWELLINGS/YR	NA	297 UNITS+/-	VARIANCE
BEDROOM COUNT	1/3 1BR, 1/3 2BR, 1/3 3 BR	NA	10% STUDIO, 53% 1BR, 33% 2BR, 4% 3BR	WAIVER
PARKING	891 (NOTE 6)	NA	453 (NOTE 6)	WAIVER

NOTES:
1. PER ZBA 7.010 TABLE 7-1 NOTE 5. FRONT SETBACK MAY BE 50' IF NO MORE THAN 5 SPACES ARE LOCATED IN FONT YARD.
2. IT IS ASSUMED THAT SETBACKS FROM WASHINGTON STREET, MILL STREET, AND SOUTH STREET ARE FRONT SETBACKS, SETBACKS FROM ROUTE 3 ARE SIDE SETBACKS, AND THERE ARE NO REAR SETBACKS.
3. CALCULATIONS FOR REQUIRED PARKING BASED ON 1 SPACE PER 300 S.F. FOR RETAIL, 1 SPACE PER 3 SEATS FOR RESTAURANTS, AND 3 SPACES PER UNIT FOR RESIDENTIAL. TOTAL PROPOSED PARKING INCLUDES 30 GARAGE SPACES. 446 PARKING SPACES ARE LOCATED WITHIN THE RESIDENTIAL LOT. PARKING SPACES ARE 9' x 19' WITH 25' ISLES ON GROCER PARKING LOT.
4. ABUTTING RESIDENCE A DISTRICT LOCATED IN THE TOWN OF NORWELL.
5. NON-RESIDENTIAL STRUCTURES MAY BE 48' WITHIN VPUD.
6. 3 PARKING SPACES PER UNIT REQUIRED IN FOR VPUD. 297 UNITS PROPOSED. 453 PARKING SPACES PROPOSED WITHIN THE RESIDENTIAL LOT.
7. AREA OF WETLANDS & FLOODPLAIN IS 21.4 ACRES. AREA OF BROCKTON EASEMENT IS 8.6 ACRES.
8. PER 6.11.50.1 LANDSCAPE BUFFER MAY BE WAIVED BY THE PLANNING BOARD.
9. PER 6.11.20 SECTION 7 DIMENSIONAL TABLE IS NOT APPLICABLE FOR VPUD SPECIAL PERMITS

PROPOSED LEGEND

	LIMIT OF WORK LINE
HV♿VAN/ CAR	HANDICAP STALL
→	TRAFFIC FLOW
	COMPACTOR
	CROSSWALK

EXISTING LEGEND

	EDGE OF RIVER & POND/ (M.A.H.W.)
	200' RIVERFRONT
	EDGE OF WETLANDS
	BORDERING VEGETATED WETLANDS (B.V.W.)
	100' BUFFER TO B.V.W.
	BORDERING LAND SUBJECT TO FLOODING (B.L.S.F.)
	AQUIFER PROTECTION OVERLAY DISTRICT
	EASEMENT
	PROPERTY LINE
	TOWN LINE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

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3 of 35				
FILE #				
2016-075-LA00				
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DRAWN BY				
CJL				
CHKD BY				
BGL				
APPD BY				
DNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER
Digitally signed by David Noel Kelly, PE on 05/17/19
Kelly Engineering Group, Inc.
dnoel@kellyengineeringgroup.com
Date: 05.17.19 12:07:25 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

OVERALL LAYOUT PLAN/ KEY SHEET

KELLY ENGINEERING GROUP
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SHEET NO. 3

SEE SHEET 05
MATCH LINE

MATCH LINE
SEE SHEET 07

BENCHMARK: RAILROAD SPIKE SET IN UTILITY POLE – ELEV. = 105.74

BENCHMARK: CHISEL SQUARE SET ON TOP OF CURB – ELEV. = 115.32

BENCHMARK: CHISEL SQUARE SET ON TOP OF CURB – ELEV. = 114.65

EXISTING BUILDING
HANOVER MALL

EXISTING BUILDING
RM = EL = 109.5

EXISTING BUILDING
BUFFALO WILD WINGS
1 STORY – BRICK
FFE=113.2

EXISTING BUILDING
BURGER KING

EXISTING BUILDING
ROCKLAND FEDERAL CREDIT UNION

EXISTING BUILDING
MOBIL

FFE=109.15

FFE=109.2

HANOVER MALL DRIVE
(PUBLIC WAY) 4+00

WASHINGTON STREET
(PUBLIC WAY – STATE HIGHWAY – ROUTE 53)

DRAINAGE EASEMENT BK: 7395 PG: 37

N/F AMR REAL ESTATE HOLDINGS – HANOVER LLC

N/F 1835 WASHINGTON ST. LLC

N/F 1810 WASHINGTON ST LLC

N/F HANOVER FIVE STAR, LLC

N/F SULLIVAN ROBERT D TRUSTEE

N/F SAGA PROPERTIES LLC

N/F 1764 WASHINGTON ST CO LLC

N/F THOMAS J. TEUTEN & JOHN H. SPURR TTS

N/F ROCKLAND FEDERAL CREDIT UNION

N/F NET LEASE REALTY, INC.

STONE BOUND W/ DRILL HOLE FOUND

DRILL HOLE IN STONE WALL

REBAR FOUND

SIGN "BUFFALO WILD WINGS"

MALL DIRECTORY SIGN

ENTRANCE SIGN WALL

EXISTING ATM STRUCTURE

CANOPY

FLAG POLE

RAMP

DUMPSTER

TRENCH DRAIN RIM=105.0 INV.=101.3

DMH (STORMCEPTOR) RIM=105.3 INV.=101.3

SMH RIM=105.72 INV. OUT=100.92 INV. IN=100.97

SMH RIM=105.20 INV. OUT=102.1 INV. IN=102.1

SMH RIM=105.09 INV. OUT=100.75 INV. IN=100.75 INV. IN=101.05

SMH RIM=104.17 INV. OUT=99.6 INV. IN=99.7

SMH RIM=108.9 INV.=106.9

SMH RIM=108.7 INV. OUT=105.1

SMH RIM=108.2

SMH RIM=108.64 INV. OUT=101.6 INV. IN=101.8

SMH RIM=108.16 INV. OUT=104.5 INV. IN=104.7

SMH RIM=107.94 INV. OUT/IN SS=102.3 INV. TANK IN=103.2

SMH RIM=107.95 INV. OUT/IN SS=102.0 INV. TANK IN=103.35

SMH RIM=108.14 (RECORD–PAVED OVER)

SMH(GREASE TRAP) RIM=108.75 GREASE LEVEL= 105.7

SMH RIM=108.30 INV.=

CONNECTION LOCATION UNKNOWN

SMH RIM=107.84 INV. OUT=104.1

SMH RIM=107.84 INV. IN=104.0 INV. IN=104.2

SMH RIM=107.98 (" INV. OUT=101.8 (6" PVC) INV. IN=101.8 (6" PVC)

SMH RIM=107.84 INV. IN=104.2 INV. IN=104.4

SMH RIM=107.84 INV. IN=104.5 INV. IN=105.1

SMH RIM=107.84 INV. OUT=104.4

SMH RIM=108.01 INV.=101.1

SMH RIM=108.09 INV. OUT=104.6

SMH RIM=107.84 (PIPE COVERED)

DMH RIM=106.49 INV. OUT=101.4 INV. IN=100.3

DMH RIM=107.48 INV. OUT=101.5 INV. IN=101.5 INV. IN=101.5

DMH RIM=107.78 INV. OUT=103.1 INV. IN=103.1 INV. IN=102.6

DMH RIM=107.41 INV. OUT=103.2 INV. IN=102.8 INV. IN=102.3 INV. IN=102.4

DMH RIM=107.78 INV. OUT=104.0 INV. IN=104.0

DMH RIM=108.56 INV. OUT=103.71 INV. IN=103.61 INV. IN=103.56

DMH RIM=107.04

DMH (STORMCEPTOR) RIM=105.3 INV.=101.3

DMH RIM=107.48 INV. OUT=101.5 INV. IN=101.5

DMH RIM=107.41 INV. OUT=103.2 INV. IN=102.8 INV. IN=102.3 INV. IN=102.4

DMH RIM=107.78 INV. OUT=104.0 INV. IN=104.0

DMH RIM=107.78 INV. OUT=104.0 INV. IN=104.1

DMH RIM=107.78 INV. OUT=104.0 INV. IN=104.0

DMH RIM=107.78 INV. OUT=104.0 INV. IN=104.1

EXISTING LEGEND

CC	CARRIAGE CORRAL	CCB	CAPE COD BERM
	HANDICAP SPACE	BCC	BITUMINOUS CONCRETE BERM
B-#	BORING LOCATION	VGC	VERTICAL GRANITE BERM
	SIGN	VCC	VERTICAL CONCRETE BERM
	CATCH BASIN	EOP	EDGE OF PAVEMENT
	DRAIN MANHOLE	LS	LANDSCAPED AREA
SD	DRAIN LINE	CCB	CAPE COD BERM
UD	UNDER DRAIN LINE		GUARDRAIL
S	SEWER MANHOLE		BOLLARD
	SEWER CLEAN OUT		TRAFFIC LIGHT
SS	SEWER LINE	CS-HP	HIGH PRESSURE GAS LINE
G	GAS LINE	PVC	POLYVINYL CHLORIDE PIPE
GV	GAS VALVE	DIP	DUCTILE IRON PIPE
GM	GAS METER	RCP	REINFORCED CONCRETE PIPE
	HYDRANT	CIP	CURED-IN-PLACE PIPE
WV	WATER VALVE		EDGE OF WETLANDS
W	WATER LINE	WF #	WETLAND FLAG
W	WATER MANHOLE		WETLAND
T	TELECOMMUNICATION LINE		EDGE OF RIVER
T	TELECOMMUNICATION MANHOLE		FLOOD PLAIN
T	ELECTRIC TRANSFORMER		CHAIN LINK FENCE
	POLE GUY WIRE	X	FENCE
	UTILITY POLE		GRAVEL PATH
UP #12	UTILITY POLE NUMBER		TREE LINE
LP	LIGHT POLE		TREES
EM	ELECTRIC METER		STONE WALL
EHH	ELECTRIC HAND HOLE		EASEMENT
OHE	OVERHEAD ELECTRIC LINE		PROPERTY LINE
UGE	UNDERGROUND ELECTRIC LINE		"DISTURBED" LINE
XXX	CONTOUR LINE (MNR)		AQUIFER PROTECTION LINE
XXX	CONTOUR LINE (MJR)		TOWN LINE
	MISC. COVER		

NOTES:

1.) UNDERGROUND FEATURES HAVE BEEN COMPILED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. THIS INFORMATION IS TO BE CONSIDERED APPROXIMATE AND KELLY ENGINEERING GROUP, INC. DOES NOT TAKE RESPONSIBILITY FOR SUBSEQUENT ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THIS PLAN AS A RESULT. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE EXISTENCE OF WHICH ARE UNKNOWN TO KELLY ENGINEERING GROUP, INC. THE SIZE, LOCATION, AND EXISTENCE OF ALL SUCH FEATURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION.

2.) THE SITE DETAIL AND SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM FIELD SURVEYS OF THE PROPERTY AND RECORD INFORMATION. HORIZONTAL LOCATIONS ARE BASED ON NAD83 AND VERTICAL ELEVATIONS ARE BASED ON NAVD88. CONTOUR LINES SHOWN HEREON ARE LIDAR BASED OBTAINED FROM NOAA AND FIELD CHECKED FOR ACCURACY. (SEE VERTICAL ACCURACY BELOW).

VERTICAL ACCURACY, AS APPLIED TO CONTOUR MAPS ON ALL PUBLICATION SCALES, SHALL BE SUCH THAT NOT MORE THAN 10 PERCENT OF THE ELEVATIONS TESTED SHALL BE IN ERROR MORE THAN ONE-HALF THE CONTOUR INTERVAL. IN CHECKING ELEVATIONS TAKEN FROM THE MAP, THE APPARENT VERTICAL ERROR MAY BE DECREASED BY ASSUMING A HORIZONTAL DISPLACEMENT WITHIN THE PERMISSIBLE HORIZONTAL ERROR FOR A MAP OF THAT SCALE.

3.) LOCUS IS PRESENTLY SHOWN ON THE TOWN OF HANOVER ZONING MAP IN PLANNED SHOPPING CENTER DISTRICT, AND WIRELESS TELECOMMUNICATIONS DISTRICT.

4.) THE SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% CHANCE ANNUAL FLOOD), AND ZONE "A" (NO BASE FLOOD ELEVATIONS DETERMINED) AS SHOWN ON THE FLOOD INSURANCE RATE MAP (FIRM) ISSUED BY FEMA, DATED JULY 17, 2012 AND BEING PANEL NUMBER 25023C0114J. (REFER TO LOMA ISSUED JULY 19, 2012 FOR 1775 WASHINGTON STREET)

5.) WETLAND FLAGS SHOWN HEREON WERE FLAGGED BY ECOTEC, INC. AND WERE FIELD LOCATED BY KELLY ENGINEERING GROUP, INC.

TOTAL LOT AREA = 106.38± AC.

AREA IN HANOVER = 84.25± AC.

AREA IN NORWELL = 22.13± AC.

PLAN REFERENCES:

1.) PLAN BOOK: 15 PAGE: 774

2.) PLAN BOOK: 62 PAGE: 4496

3.) PLAN NO. 903 OF 1972

4.) PLAN NO. 179 OF 1974

5.) PLAN NO. 1554 OF 1986

6.) PLAN NO. 233 OF 1993

7.) PLAN NO. 638 OF 1994

8.) LAND COURT CONFIRMATION PLAN 35440A RECORDED AS PLAN 379 OF 1976

9.) LAND COURT PLAN 39715A

10.) LAND COURT PLAN 39715B

11.) ALTA/NSPS LAND TITLE SURVEY PREPARED BY HOLDEN ENGINEERING AND SURVEYING INC., PREPARED FOR BOCK AND CLARK, NATIONAL COORDINATORS, DATED 6-6-16 AND LAST REVISED 10-19-16

LIST OF UTILITY PROVIDERS:

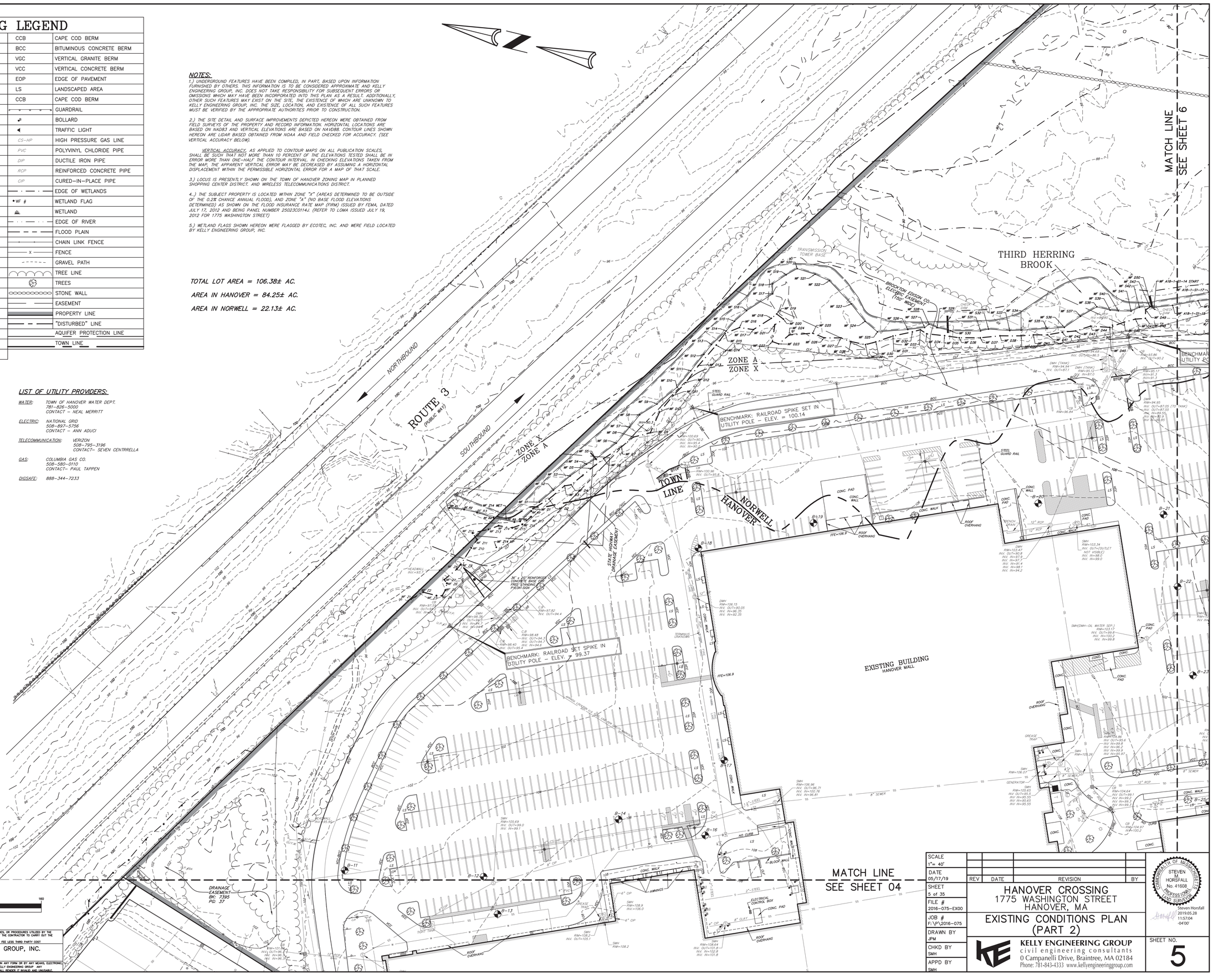
WATER: TOWN OF HANOVER WATER DEPT.
781-826-5000
CONTACT - NEAL MERRITT

ELECTRIC: NATIONAL GRID
508-897-5756
CONTACT - ANN ADUCI

TELECOMMUNICATION: VERIZON
508-795-3196
CONTACT- SEVEN CENTRRELLA

GAS: COLUMBIA GAS CO.
508-580-0110
CONTACT- PAUL TAPPEN

DIGSAFE: 888-344-7233



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

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SCALE			
1"= 40'			
DATE	REV	DATE	REVISION BY
05/17/19			
SHEET			
5 of 35			
FILE #			
2016-075-EX00			
JOB #			
F:\P\2016-075			
DRAWN BY			
JPM			
CHKD BY			
SMH			
APPD BY			
SMH			

COMMONWEALTH OF MASSACHUSETTS
STEVEN M. HORSFALL
No. 41608
REGISTERED PROFESSIONAL LAND SURVEYOR

Steven Horsfall
2019.05.28
11:57:04
-04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

EXISTING CONDITIONS PLAN (PART 2)

KELLY ENGINEERING GROUP
civil engineering consultants
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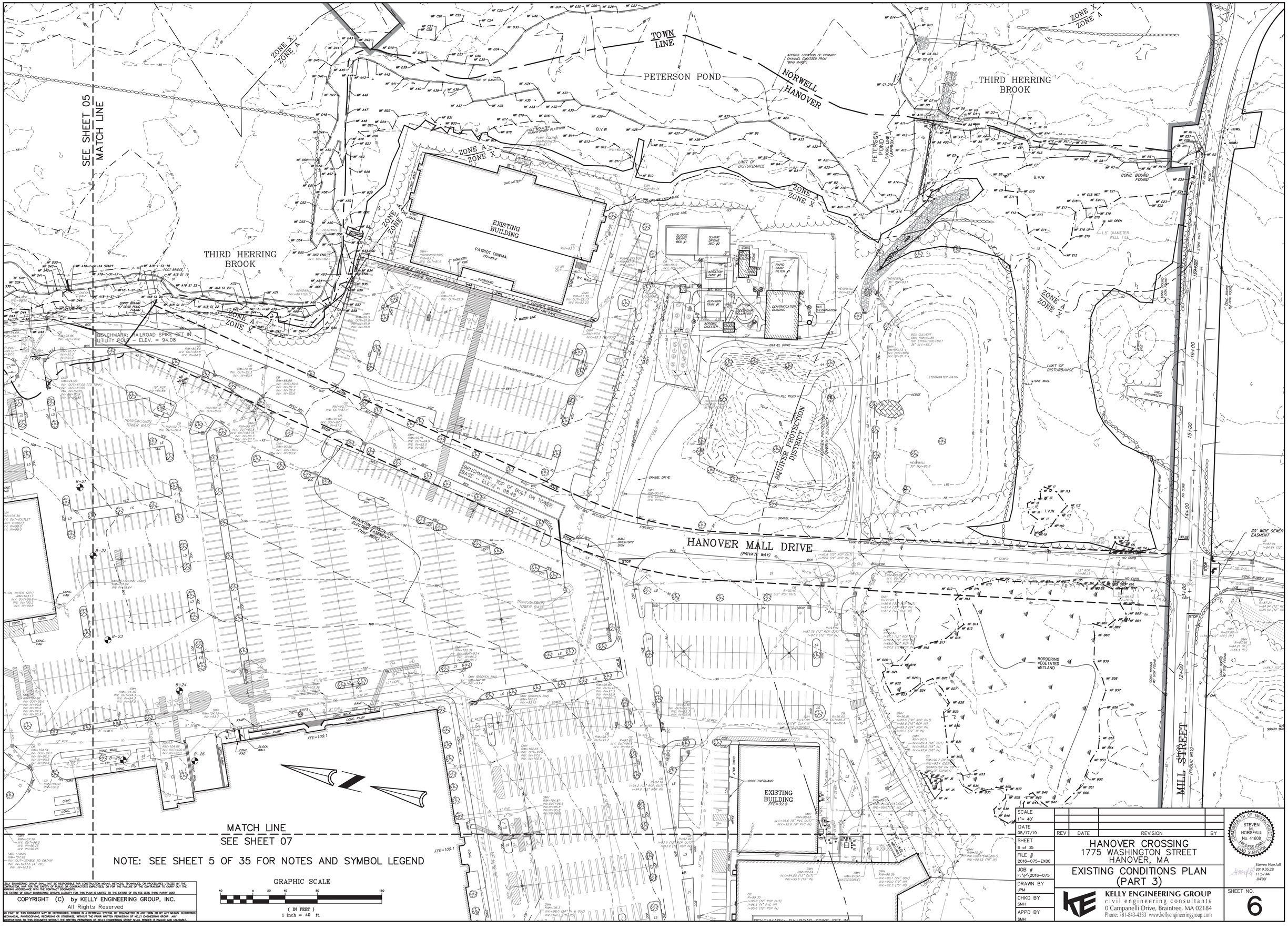
Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO. 5



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SCALE	1" = 40'
DATE	05/17/19
SHEET	6 of 35
FILE #	2016-075-EX00
JOB #	F: \P\2016-075
DRAWN BY	JPM
CHKD BY	SMH
APPD BY	SMH

REV	DATE	REVISION	BY

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

EXISTING CONDITIONS PLAN (PART 3)

COMMONWEALTH OF MASSACHUSETTS
STEVEN M. HORSFALL
No. 41608
REGISTERED PROFESSIONAL LAND SURVEYOR
Steven Horsfall
2019.05.28 11:57:44 -04'00'

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO. 6

SEE SHEET 06
MATCH LINE

SEE SHEET 04
MATCH LINE

BENCHMARK: RAILROAD SPIKE SET IN UTILITY POLE – ELEV. = 101.54

BENCHMARK: NAIL SET IN CONCRETE – ELEV. = 110.90

EXISTING BUILDING
DICK'S SPORTING GOODS
FFE=101.7

EXISTING BUILDING
SLEEPY'S / OFFICE MAX
FFE=110.9

EXISTING BUILDING
TRADER JOE'S
FFE=115.9

EXISTING BUILDING
MEDICAL OFFICES

EXISTING BUILDING
AT&T STORE

AQUIFER PROTECTION DISTRICT

BORDERING VEGETATED WETLAND

WETLAND AREA

WASHINGTON STREET
(PUBLIC WAY – STATE HIGHWAY – ROUTE 53)

N/F
MILL POND OFFICE PARK CONDOMINIUM

N/F
COMMONWEALTH OF MASSACHUSETTS – DPW

N/F
BRAZOS AUTOMOTIVE PROPERTIES LP

N/F
HANOVER GENERAL LLC TT

N/F
SURENDER SINGH & RANDHAWA SUKHI TT

N/F
ARCHLAND PROPERTY L

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

NOTE: SEE SHEET 5 OF 35 FOR NOTES AND SYMBOL LEGEND

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APPD BY SMH

REV	DATE	REVISION	BY

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

EXISTING CONDITIONS PLAN (PART 4)

COMMONWEALTH OF MASSACHUSETTS
STEVEN M. HORSFALL
No. 41608
REGISTERED PROFESSIONAL LAND SURVEYOR
Steven Horsfall 2019.05.28 11:58:21 -04'00'

KELLY ENGINEERING GROUP
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SHEET NO. 7

EXISTING LEGEND

■	CATCH BASIN
Ⓓ	DRAIN MANHOLE
—— SD ——	DRAIN LINE
—— UD ——	UNDER DRAIN LINE
Ⓢ	SEWER MANHOLE
○	SEWER CLEAN OUT
—— EX-SS ——	SEWER LINE
—— EX-G ——	GAS LINE
—— EX-W ——	WATER LINE
—— T ——	TELECOMMUNICATION LINE
Ⓣ	TELECOMMUNICATION MANHOLE
T	ELECTRIC TRANSFORMER
	POLE GUY WIRE
UP #12	UTILITY POLE NUMBER
	LIGHT POLE
EM	ELECTRIC METER
EHH	ELECTRIC HAND HOLE
—— EX-OHP ——	OVERHEAD ELECTRIC LINE
—— EX-UGP ——	UNDERGROUND ELECTRIC LINE
	EDGE OF WETLANDS
B7	WETLAND FLAG
	WETLAND SYMBOL
	EDGE OF RIVER
	FLOOD PLAIN
	PROPERTY LINE
	AQUIFER PROTECTION LINE
	TOWN LINE

PROPOSED LEGEND

	CONSTRUCTION FENCE LINE
	EROSION CONTROL LINE
	SILT SACK
	CATCH BASIN

DEMO LEGEND

X	STRUCTURE TO BE REMOVED
X X	LINE TO BE REMOVED
—— SD ——	STORM DRAIN LINE TO REMAIN
—— EX-OHP ——	OVERHEAD ELECTRIC LINE TO REMAIN
—— EX-UGP ——	UNDERGROUND ELECTRIC LINE TO REMAIN
—— EX-G ——	GAS LINE TO REMAIN
—— EX-SS ——	SEWER LINE TO REMAIN
—— EX-W ——	WATER LINE TO REMAIN

DEMO NOTES:
1. PAVEMENT TO BE REMOVED MAY BE RECLAIMED AS BASE COURSE.
2. ALL GRANITE CURBING (IF UNDAMAGED) THAT IS REMOVED MAY BE SALVAGED & RE-USED AS NEEDED DURING CONSTRUCTION.
3. LANDSCAPE MATERIALS TO BE REMOVED.
4. LIGHT BOLLARDS, BASES, POLES ETC. TO BE REMOVED, MAY BE SALVAGED & REUSED AS NECESSARY.
5. SELECTED IRRIGATION LINES TO BE REMOVED. RECONNECT AS NECESSARY SO THAT REMAINING IRRIGATION IS ACTIVE AND USABLE

ANTICIPATED SITE CONSTRUCTION SEQUENCING

INITIAL MOBILIZATION PHASE:
1. INSTALLATION OF CONSTRUCTION SIGNAGE.
2. INSTALLATION OF CONSTRUCTION SECURITY FENCING AND GATES
3. INSTALLATION OF PERIMETER EROSION CONTROLS
4. CLEARING OF TREES IN THE AREA OF WORK
5. STAKE OUT AND PROTECT AREAS OF INFILTRATION BASIN'S, INSTALLATION OF TEMPORARY SEDIMENT PONDS.THE CONTRACTOR SHOULD SET THESE BMPs BASED ON CONSTRUCTION SCHEDULE AND SITE CONDITIONS).
6. BEGIN FOUNDATION WORK ON BUILDINGS
7. CONTINUE SITE PREPARATION ON PERIMETER OF LAND, INCLUDING, CUTS AND FILLS AND GRADE SITE TO TEMPORARY SEDIMENT PONDS.
8. CONSTRUCT STORMWATER MANAGEMENT SYSTEM.
9. ONGOING INSPECTIONS, INSTALLATION AND REPLACEMENT OF ANY NEW OR EXISTING EROSION CONTROLS MEASURES SHALL BE ADDED BY THE CONTRACTOR ON AN AS-NEEDED BASIS.

SEDIMENT CONTROL

1. PRIOR TO THE COMMENCEMENT OF ANY OTHER WORK A CONSTRUCTION FENCE SHALL BE INSTALLED AROUND THE EXISTING AND PROPOSED LIMITS OF WORK.

2. PRIOR TO THE COMMENCEMENT OF ANY OTHER WORK A SILT SACK SHALL BE INSTALLED IN EACH EXISTING DRAINAGE INLET.

3. AFTER INSTALLATION OF EACH DRAINAGE INLET A SILT SACK SHALL BE INSTALLED IN EACH INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM.

4. AT THE END OF EACH WORK DAY, THE OPERATOR SHALL MECHANICALLY SWEEP OR MANUALLY SWEEP SEDIMENTS FROM THE STREET, UNLESS TRACKING AND SEDIMENT IS NOT EVIDENT.

5. TEMPORARY SEEDING – WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY CEASES ON ANY PARTICULAR AREA, ALL DISTURBED GROUND WHERE THERE WILL NOT BE CONSTRUCTION FOR LONGER THAN 21 DAYS MUST BE SEEDED WITH FAST-GERMINATING TEMPORARY SEED AND PROTECTED WITH MULCH.

6. PER CONSTRUCTION GENERAL PERMIT, THE CONTRACTOR SHALL REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. ALL DEMOLITION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE SITE TO A LEGAL DUMP SITE. ALL TRUCKS LEAVING THE SITE SHALL BE COVERED.

7. DUMPSTERS SHALL BE BROUGHT TO THE SITE WHILE CONSTRUCTION IS ONGOING AND SHALL BE USED FOR ALL CONSTRUCTION/BUILDING DEBRIS. THIS SHALL BE REGULARLY EMPTIED SUCH THAT MATERIALS DO NOT SPILL ONTO THE GROUND. DUMPSTERS SHALL BE COVERED AT NIGHT.

8. NO DEWATERING IS PERMITTED UNLESS THE CONSERVATION COMMISSION AND/OR DEPARTMENT OF PUBLIC WORKS HAS RECEIVED AND APPROVED, OR APPROVED WITH MODIFICATIONS, A DEWATERING PLAN. ANY TEMPORARY SETTLING BASINS TO BE CONSTRUCTED SHALL BE PRE-APPROVED BY THE CONSERVATION COMMISSION.

9. AT THE END OF CONSTRUCTION ALL DRAINAGE STRUCTURES TO REMAIN SHALL BE CLEANED OF SILT, STONES AND OTHER DEBRIS.

10. DURING CONSTRUCTION THE SEDIMENT CONTROL MEASURES SHOWN ON THESE PLANS SHALL BE INSPECTED EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF ANY STORM EVENT GENERATING MORE THAN 1/2" OF RAINFALL. THE SEDIMENT CONTROL MEASURES SHALL BE CLEANED REGULARLY AND ADJUSTED IF NECESSARY TO ENSURE THAT NO SILT OR DEBRIS LEAVES THE SITE.

11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTITUTE EROSION CONTROL MEASURES ON AN AS NECESSARY BASIS, SUCH THAT EXCESSIVE SOIL EROSION DOES NOT OCCUR.

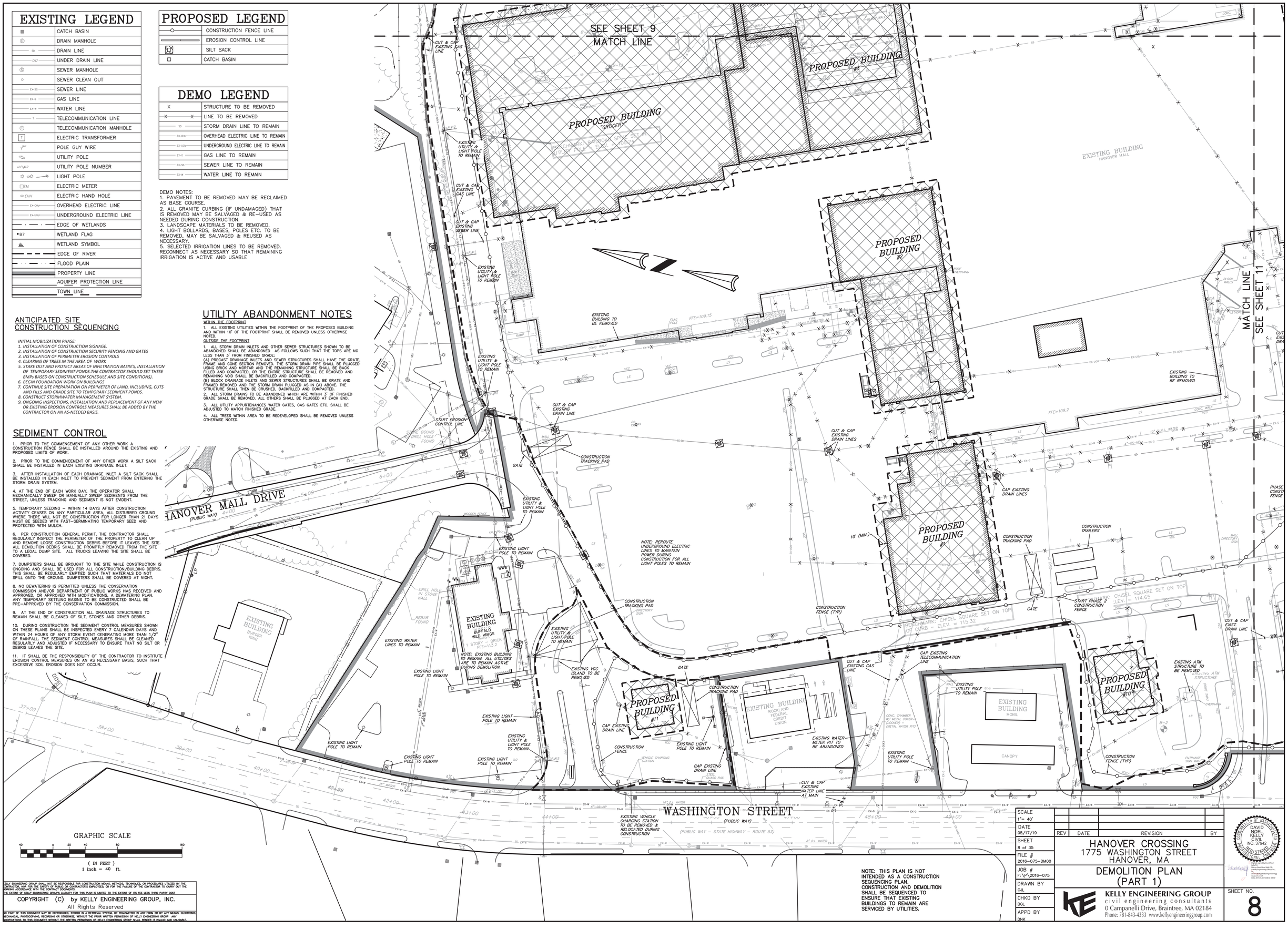
UTILITY ABANDONMENT NOTES

WITHIN THE FOOTPRINT

1. ALL EXISTING UTILITIES WITHIN THE FOOTPRINT OF THE PROPOSED BUILDING AND WITHIN 10' OF THE FOOTPRINT SHALL BE REMOVED UNLESS OTHERWISE NOTED.

OUTSIDE THE FOOTPRINT

1. ALL STORM DRAIN INLETS AND OTHER SEWER STRUCTURES SHOWN TO BE ABANDONED SHALL BE ABANDONED AS FOLLOWS SUCH THAT THE TOPS ARE NO LESS THAN 3' FROM FINISHED GRADE:
(A) PRECAST DRAINAGE INLETS AND SEWER STRUCTURES SHALL HAVE THE GRATE, FRAME AND CONE SECTION REMOVED. THE STORM DRAIN PIPE SHALL BE PLUGGED USING BRICK AND MORTAR AND THE REMAINING STRUCTURE SHALL BE BACK FILLED AND COMPACTED, OR THE ENTIRE STRUCTURE SHALL BE REMOVED AND REMAINING VOID SHALL BE BACKFILLED AND COMPACTED.
(B) BLOCK DRAINAGE INLETS AND SEWER STRUCTURES SHALL BE GRATE AND FRAMED REMOVED AND THE STORM DRAIN PLUGGED AS IN (A) ABOVE. THE STRUCTURE SHALL THEN BE CRUSHED, BACKFILLED AND COMPACTED.
2. ALL STORM DRAINS TO BE ABANDONED WHICH ARE WITHIN 3' OF FINISHED GRADE SHALL BE REMOVED. ALL OTHERS SHALL BE PLUGGED AT EACH END.
3. ALL UTILITY APPURTENANCES WATER GATES, GAS GATES ETC. SHALL BE ADJUSTED TO MATCH FINISHED GRADE.
4. ALL TREES WITHIN AREA TO BE REDEVELOPED SHALL BE REMOVED UNLESS OTHERWISE NOTED.



NOTE: THIS PLAN IS NOT INTENDED AS A CONSTRUCTION SEQUENCING PLAN. CONSTRUCTION AND DEMOLITION SHALL BE SEQUENCED TO ENSURE THAT EXISTING BUILDINGS TO REMAIN ARE SERVICED BY UTILITIES.

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DRAWN BY	CJL
CHKD BY	BGL
APPD BY	DNK

REV	DATE	REVISION	BY

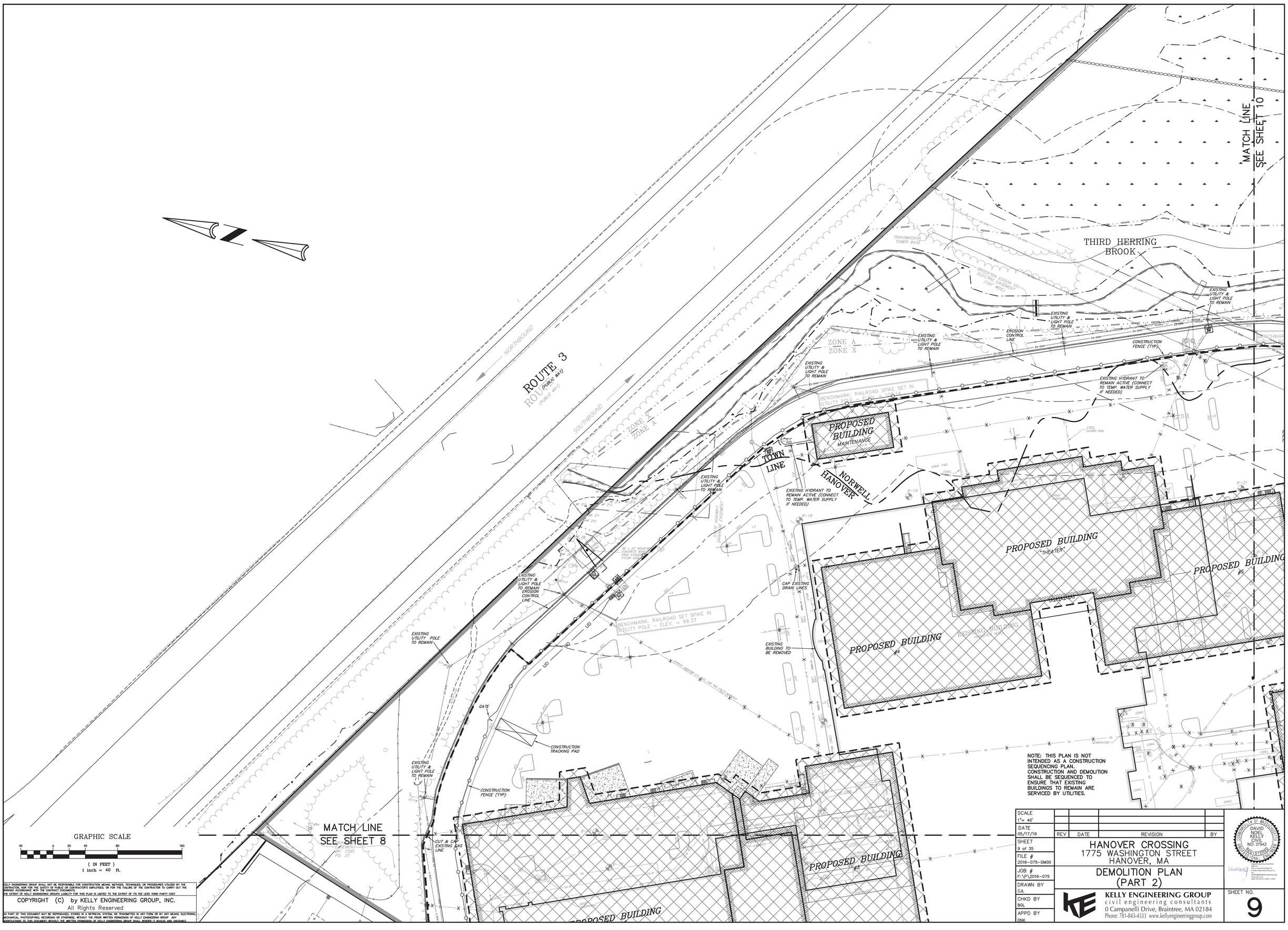
HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

DEMOLITION PLAN (PART 1)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLEY
CIVIL
NO. 37842
REGISTERED PROFESSIONAL ENGINEER

SHEET NO. 8



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SCALE 1"= 40'				
DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 9 of 35				
FILE # 2016-075-DM00				
JOB # F:\P\2016-075				
DRAWN BY CJL				
CHKD BY BGL				
APPD BY DNK				

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

DEMOLITION PLAN
(PART 2)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

SHEET NO.
9

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SEE SHEET 9, MATCH LINE

TOWN LINE

NORWELL
HANOVER

PETERSON POND

THIRD HERRING BROOK

APPROX. LOCATION OF PRIMARY CHANNEL (DIGITIZED FROM "BING MAPS")

PETERSON POND SHORELINE (APPROX.)

ZONE X
ZONE A

LIMIT OF DISTURBANCE

HANOVER CROSSING
RESIDENTIAL
(BY OTHERS)
UTILITIES IN THIS AREA TO BE REMOVED BY THE HANOVER COMPANY

WASTEWATER TREATMENT PLANT TO BE DECOMMISSIONED BY PREP.

EXISTING UTILITY & LIGHT POLE TO REMAIN

BENCHMARK: RAILROAD SPIKE SET
ELEV. = 94.08

END EROSION CONTROL LINE

EXISTING DRAIN LINE TO REMAIN ACTIVE

CUT & CAP EXISTING DRAIN LINE

RELOCATE LIGHT & UTILITY POLE

CUT & CAP EXIST. DRAIN LINE

TRANSMISSION TOWER BASE TO REMAIN

TRANSMISSION ELECTRIC LINE TO REMAIN

EXISTING GUY POLE TO BE MODIFIED

BENCHMARK: BOLT ON TOWER
ELEV. = 98.48

BROCKTON EDISON CO. ELECTRIC EASEMENT (15' WIDE)

PROPOSED BUILDING #5

PROPOSED GAS TO CONNECT TO EXIST. GAS LINE

PROPOSED WATER TO CONNECT TO EXIST. WATER LINE

HANOVER MALL DRIVE
(PRIVATE WAY)

EXISTING GAS LINE TO REMAIN

EXISTING DRAIN LINE TO BE REMOVED & REPLACED DURING DRAINAGE CONSTRUCTION (FOR SEWER & DRAIN CROSSING)

RELOCATE OVERHEAD ELECTRIC LINE (TYP)

TRANSMISSION TOWER BASE TO REMAIN

RELOCATED LIGHT & UTILITY POLE

RELOCATED OVERHEAD ELECTRIC LINE (TYP)

EXISTING LIGHT POLE TO BE REMAIN

EROSION CONTROL LINE

START EROSION CONTROL LINE

CONSTRUCTION FENCE (TYP)

CUT & CAP EXIST. SEWER LINE

EXISTING SEWER LINE TO BE REPLACED DURING CONSTRUCTION

INSTALL GAS VALVE AS CAP OF EXISTING GAS LINE

END CONSTRUCTION FENCE

CAP EXISTING WATER LINE

CAP EXISTING SEWER LINE

EXISTING WATER LINE TO REMAIN ACTIVE

EXISTING ROOF DRAIN TO REMAIN ACTIVE

EXISTING UGE TO REMAIN ACTIVE

EXISTING LIGHT POLE TO REMAIN

CAP EXISTING DRAIN LINE

EXISTING DRAIN LINE TO BE REMOVED & REPLACED DURING DRAINAGE CONSTRUCTION

EXISTING BUILDING
MACY'S FURNITURE

NOTE: EXISTING BUILDING TO REMAIN. ALL UTILITIES ARE TO REMAIN ACTIVE DURING DEMOLITION.

EXISTING DRAIN LINE TO BE REMOVED & REPLACED DURING DRAINAGE CONSTRUCTION

NOTE: THIS PLAN IS NOT INTENDED AS A CONSTRUCTION SEQUENCING PLAN. CONSTRUCTION AND DEMOLITION SHALL BE SEQUENCED TO ENSURE THAT EXISTING BUILDINGS TO REMAIN ARE SERVICED BY UTILITIES.

MILL STREET (PUBLIC WAY)

30' WIDE SEWER EASMENT

BORDERING VEGETATED WETLAND

MATCH LINE
SEE SHEET 11

EXISTING BUILDING
MACY'S

NOTE: EXISTING BUILDING TO REMAIN. ALL UTILITIES ARE TO REMAIN ACTIVE DURING DEMOLITION.

TRANSMISSION ELECTRIC LINE TO REMAIN

TRANSMISSION TOWER BASE TO REMAIN

BENCHMARK: RAILROAD SPIKE SET
ELEV. = 94.08

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

DEMOLITION PLAN (PART 3)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

DAVID NOEL KELLY CIVIL NO. 37942 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

SHEET NO. 10

SEE SHEET 10
MATCH LINE

SEE SHEET 8
MATCH LINE

EXISTING BUILDING
MACY'S

NOTE: EXISTING BUILDING TO REMAIN. ALL UTILITIES ARE TO REMAIN ACTIVE DURING DEMOLITION.

PROPOSED BUILDING #1

EXIST. FIRE CONNECTION TO BE RELOCATED & REMAIN ACTIVE DURING CONSTRUCTION.

EXIST. ROOF DRAIN TO BE REROUTED TO NEW ROOF DRAIN SYSTEM & REMAIN ACTIVE DURING CONSTRUCTION.

START CONSTRUCTION FENCE

CUT & CAP EXIST. GAS LINE

CUT & CAP EXIST. WATER LINE

PROPOSED GAS TO CONNECT TO EXIST. GAS LINE

PROPOSED SEWER TO CONNECT TO EXIST. SMH

CUT & CAP EXIST. SEWER LINE

CUT & CAP EXIST. DRAIN LINE

PROPOSED WATER TO CONNECT TO EXIST. WATER LINE

PROPOSED DRAIN TO CONNECT TO EXIST. DMH

SECTION OF EXIST. WATER LINE TO REMAIN

CONSTRUCTION FENCE (TYP)

END PHASE 2 CONSTRUCTION FENCE

GATE

APPROX. LOCATION OF UNDERGROUND ELECTRIC LINE CAP

TRANSMISSION ELECTRIC LINE TO REMAIN

EXISTING UNDERGROUND ELECTRIC LINE TO REMAIN

PHASE 2 CONSTRUCTION FENCE

TRANSMISSION TOWER BASE TO REMAIN

NOTE: REROUTE UNDERGROUND ELECTRIC LINES TO MAINTAIN POWER DURING CONSTRUCTION FOR ALL LIGHT POLES TO REMAIN

EXISTING LIGHT POLE TO REMAIN

EXISTING BUILDING TO BE REMOVED

EXISTING ATM STRUCTURE TO BE REMOVED

EXISTING BUILDING
TRADER JOE'S
FFE=115.9

NOTE: EXISTING BUILDING TO REMAIN. ALL UTILITIES ARE TO REMAIN ACTIVE DURING DEMOLITION.

PANERA BREAD

EXISTING BUILDING
MEDICAL OFFICES

EXISTING BUILDING
SLEEPYS/ OFFICE MAX/ PETCO
FFE=110.9

NOTE: EXISTING BUILDING TO REMAIN. ALL UTILITIES ARE TO REMAIN ACTIVE DURING DEMOLITION.

EXISTING BUILDING
AT&T STORE

EXISTING BUILDING
MACY'S FURNITURE

NOTE: EXISTING BUILDING TO REMAIN. ALL UTILITIES ARE TO REMAIN ACTIVE DURING DEMOLITION.

EXISTING UTILITY & LIGHT POLE TO REMAIN

EXISTING DRAIN LINE TO BE REMOVED & REPLACED DURING DRAINAGE CONSTRUCTION

BENCHMARK: RAILROAD SPIKE SET IN UTILITY POLE – ELEV. = 101.54

BENCHMARK: NAIL SET IN CONCRETE – ELEV. = 110.90

START EROSION CONTROL LINE

END EROSION CONTROL LINE

AQUIFER PROTECTION OVERLAY DISTRICT

BORDERING VEGETATED WETLAND

WETLAND AREA

MILL STREET
(PUBLIC WAY)

WASHINGTON STREET
(PUBLIC WAY – STATE HIGHWAY – ROUTE 53)

WASHINGTON STREET
(PUBLIC WAY)

NOTE: THIS PLAN IS NOT INTENDED AS A CONSTRUCTION SEQUENCING PLAN. CONSTRUCTION AND DEMOLITION SHALL BE SEQUENCED TO ENSURE THAT EXISTING BUILDINGS TO REMAIN ARE SERVICED BY UTILITIES.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly
DN: cn=David Noel Kelly, o=Kelly Engineering Group, Inc., ou=Civil Engineering, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.20 15:09:09 -04'00'

SHEET NO. 11

PROPOSED LEGEND

CC	CONCRETE CURB
VAN / HP VAN	VAN HANDICAP SPACE
CAR	CAR HANDICAP SPACE
	HANDICAP RAMP
	HANDICAP SIGN/ BOLLARD
	CROSSWALK
	SAW CUT/ MATCH PAVEMENT LINE
	HEAVY DUTY PAVEMENT
	TRAFFIC FLOW
	SIGN
	LIMITS OF WORK
	SNOW STORAGE
	UTILITY POLE
	LIGHT POLES
	PEDESTRIAN LIGHT
L & S	LOAM & SEED

SEE SHEET 13
MATCH LINE

MATCH LINE
SEE SHEET 15

PROPOSED BUILDING "GROCERY"

PROPOSED BUILDING #3

PROPOSED BUILDING #2

PROPOSED BUILDING #1

PROPOSED BUILDING #9

PROPOSED BUILDING #10

PROPOSED BUILDING #11

"GROCERY" PARKING LOT

"GROCERY" PARKING LOT
ALL STRIPING "YELLOW"
ALL CURBING "VERTICAL GRANITE"

EXISTING BUILDING
BUFFALO WILD WINGS

HANOVER CROSSING WAY
(PUBLIC WAY)

WASHINGTON STREET
(PUBLIC WAY)

LIMITS OF WORK LINE (TYP)

4' WIDE CONCRETE SIDEWALK

HEAVY DUTY PAVEMENT (TYP)

FIRE LANE
NO PARKING

START VGC CONFORM TO EXIST.

END VGC CONFORM TO EXIST.

SIGN TYPE: B

SAW-CUT/ MATCH PAVEMENT LINE

REMOVE ISLAND DURING CONSTRUCTION & REPLACE IN KIND.

PAVEMENT IN THIS AREA TO BE MILLED & OVERLAYED

EXISTING PAVEMENT TO REMAIN

NEW BITUMINOUS PAVEMENT

SNOW STORAGE (TYP)

PROPOSED LIGHT POLE (TYP)

PROPOSED PEDESTRIAN LIGHT (TYP)

PROPOSED RETAINING WALL

RAISED CROSSWALK

5' WIDE BREAK IN CURB

SLOPED CONCRETE CURBING

STAMPED CONCRETE

FOR DETAILS IN THIS AREA SEE LANDSCAPING PLANS

DUMPSTER PAD

TRANSFORMER PAD

COMPACTOR

SIGN "STOP" (TYP)

EXIST. SIGN TYPE: A

EXIST. SIGN TYPE: D

SIGN TYPE: C

SAW-CUT/ MATCH PAVEMENT LINE (TYP)

N/F AMR REAL ESTATE HOLDINGS - HANOVER LLC

N/F 1835 WASHINGTON ST. LLC

N/F 1810 WASHINGTON ST LLC

N/F HANOVER FIVE STAR, LLC

N/F SULLIVAN ROBERT D TRUSTEE

N/F SAGA PROPERTIES LLC

N/F 1764 WASHINGTON ST OD LLC

N/F THOMAS J. REUTEN & JOHN H. SPURR TTS

N/F ROCKLAND FEDERAL CREDIT UNION

N/F NET LEASE REALTY, INC.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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SCALE	1"= 40'
DATE	05/17/19
SHEET	12 of 35
FILE #	2016-075-LA00
JOB #	F:\P\2016-075
DRAWN BY	CJL
CHKD BY	BGL
APPD BY	DNK

REV	DATE	REVISION	BY

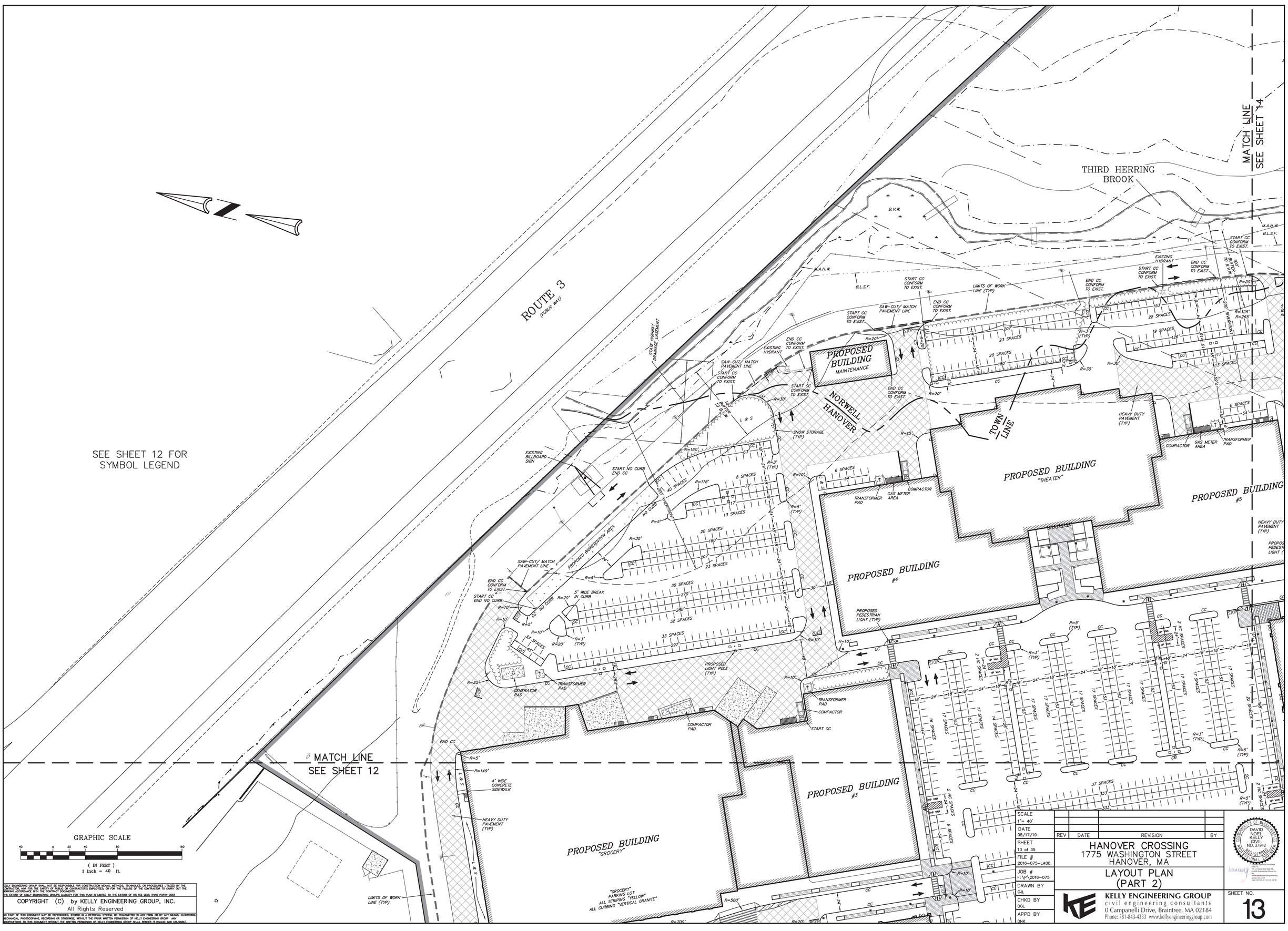
HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

LAYOUT PLAN (PART 1)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

SHEET NO. 12



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SCALE			
1"= 40'			
DATE			
05/17/19	REV	DATE	REVISION BY
SHEET			
13 of 35			
FILE #			
2016-075-LA00			
JOB #			
F:\P\2016-075			
DRAWN BY			
CJL			
CHKD BY			
BGL			
APPD BY			
DNK			

DAVID NOEL KELLY CIVIL NO. 37942 REGISTERED PROFESSIONAL ENGINEER

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

LAYOUT PLAN (PART 2)

KELLY ENGINEERING GROUP
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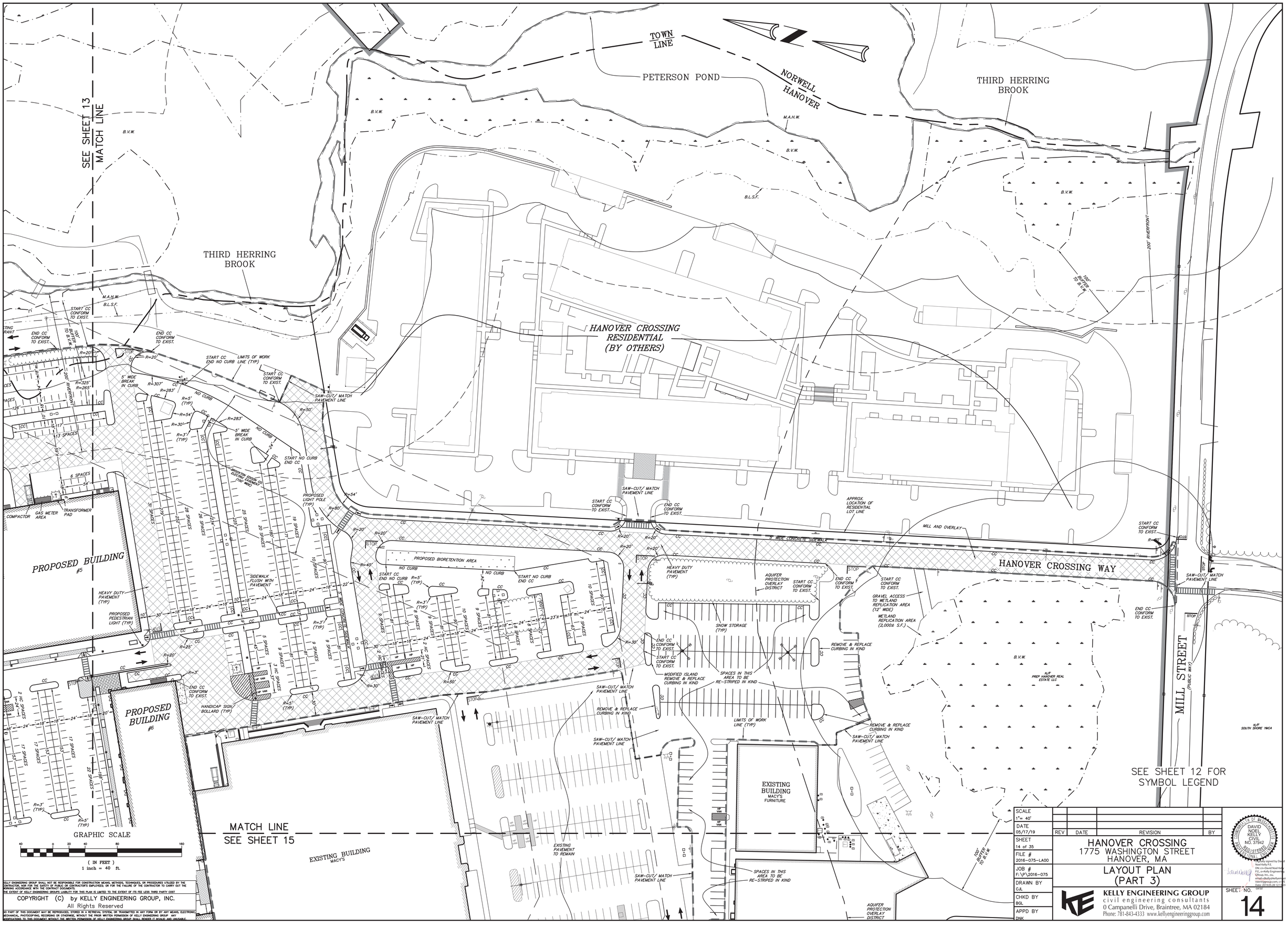
SHEET NO.
13



SCALE				
1"= 40'				
DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 14 of 35				
FILE # 2016-075-LA00				
JOB # F:\P\2016-075				
DRAWN BY CJL				
CHKD BY BGL				
APPD BY DNK				

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

LAYOUT PLAN
(PART 3)

KELLY ENGINEERING GROUP
civil engineering consultants
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COMMONWEALTH OF MASSACHUSETTS DAVID NOEL KELLY CIVIL NO. 37942 REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly P.E.
DN: cn=David Noel Kelly P.E., o=Kelly Engineering Group, Inc., ou, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.28 12:13:03 -04'00'

SHEET NO. 14

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SEE SHEET 14
MATCH LINE

SEE SHEET 12
MATCH LINE

EXISTING BUILDING
MACY'S

PROPOSED BUILDING #7

PROPOSED BUILDING #8

EXISTING BUILDING
DICK'S SPORTING GOODS

EXISTING BUILDING
SLEEPYS/ OFFICE MAX/ PETCO

EXISTING BUILDING
TRADER JOE'S

PANERA BREAD

N/F
HANOVER GENERAL LLC TT

N/F
BRAZOS AUTOMOTIVE PROPERTIES LP

N/F
SURENDER SINGH & RANDHAWA SUKHI TT

N/F
ARCHLAND PROPERTY I, LLC

N/F
BROAD BROOK LLC

N/F
COMMONWEALTH OF MASSACHUSETTS - DPW

N/F
MILL POND OFFICE PARK CONDOMINIUM

WASHINGTON STREET
(ROUTE 53)
(PUBLIC WAY)

MILL STREET
(PUBLIC WAY)

EXISTING PAVEMENT TO REMAIN

SAW-CUT/ MATCH PAVEMENT LINE

SPACES IN THIS AREA TO BE RE-STRIPED IN KIND

AQUIFER PROTECTION OVERLAY DISTRICT

PROPOSED INFILTRATION BASIN

HEAVY DUTY PAVEMENT (TYP)

LIMITS OF WORK LINE (TYP)

NEW HANDICAP RAMP ON EXIST. SIDEWALK

END CC CONFORM TO EXIST.

START CC CONFORM TO EXIST.

COMPACTOR

TRANSFORMER PAD

PROPOSED LIGHT POLE (TYP)

PROPOSED PEDESTRIAN LIGHT (TYP)

FOR DETAILS IN THIS AREA SEE LANDSCAPING PLANS

RAISED CROSSWALK

SIGN TYPE: B

5' WIDE BREAK IN CURB

STRIPE CENTER OF DRIVE IN THIS AREA

SNOW STORAGE (TYP)

SLOPED CONCRETE CURBING

STAMPED CONCRETE

SIGN TYPE: C

PROPOSED RETAINING WALL

DUMPSTER PAD

EXIST. SIGN TYPE: D

EXIST. SIGN TYPE: A

EXISTING LIGHT SIGNAL (TYP)

B.V.W.

100' BUFFER TO B.V.W.

SEE SHEET 12 FOR SYMBOL LEGEND

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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SCALE				
1"= 40'				
DATE				
05/17/19	REV	DATE	REVISION	BY
SHEET				
15 of 35				
FILE #				
2016-075-LA00				
JOB #				
F:\P\2016-075				
DRAWN BY				
CJL				
CHKD BY				
BGL				
APPD BY				
DNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37842
REGISTERED PROFESSIONAL ENGINEER

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Date: 2019.05.28 12:14:12 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

LAYOUT PLAN
(PART 4)

KELLY ENGINEERING GROUP
civil engineering consultants
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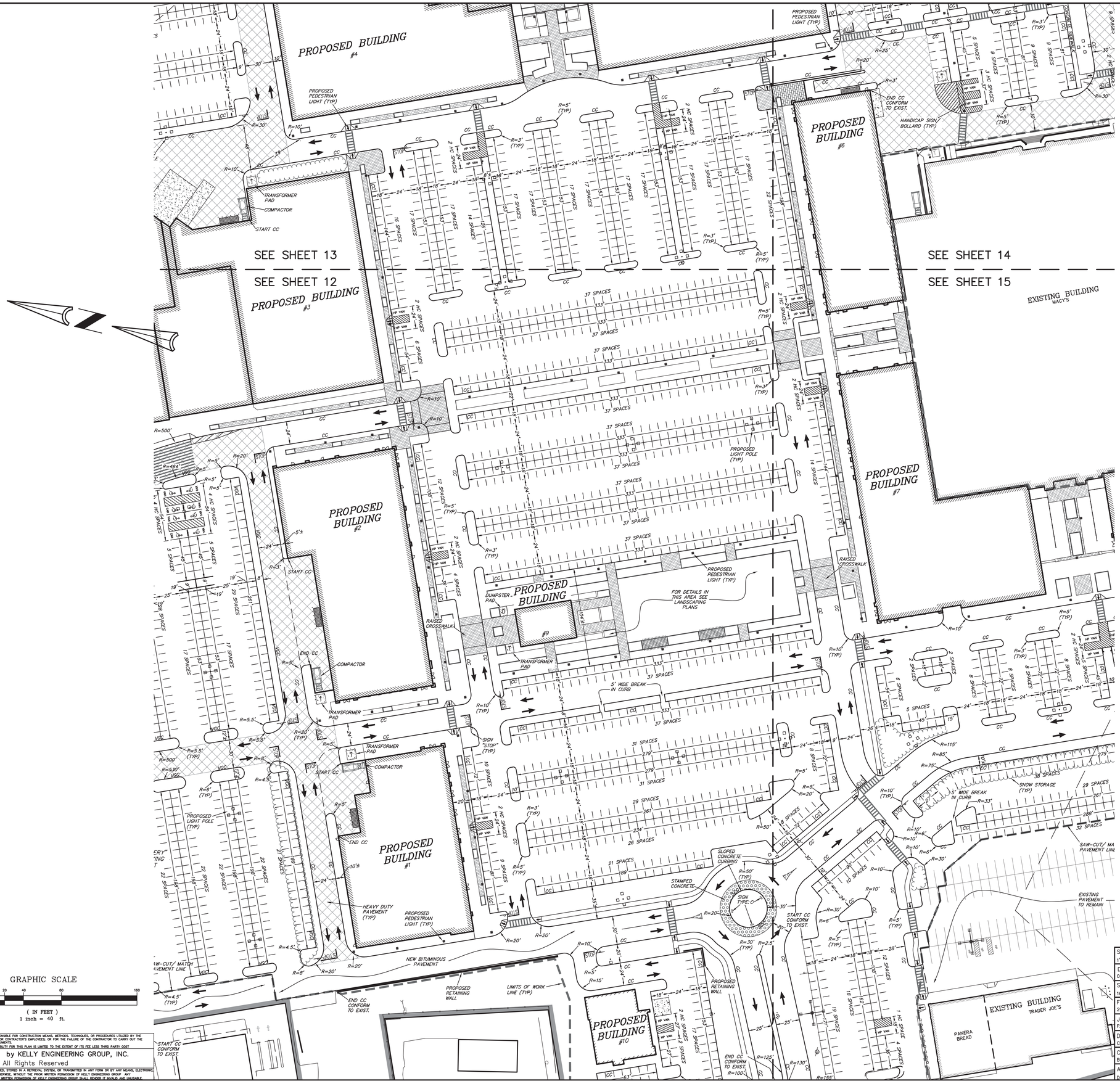
SHEET NO.
15



SEE SHEET 12 FOR SYMBOL LEGEND

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 16 of 35				
FILE # 2016-075-LA00				
JOB # F:\P\2016-075				
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CHKD BY BGL				
APPD BY DNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly P.E.
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Date: 2019.05.20 12:14:56 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

LAYOUT PLAN (PART 5)

KELLY ENGINEERING GROUP
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SHEET NO. 16

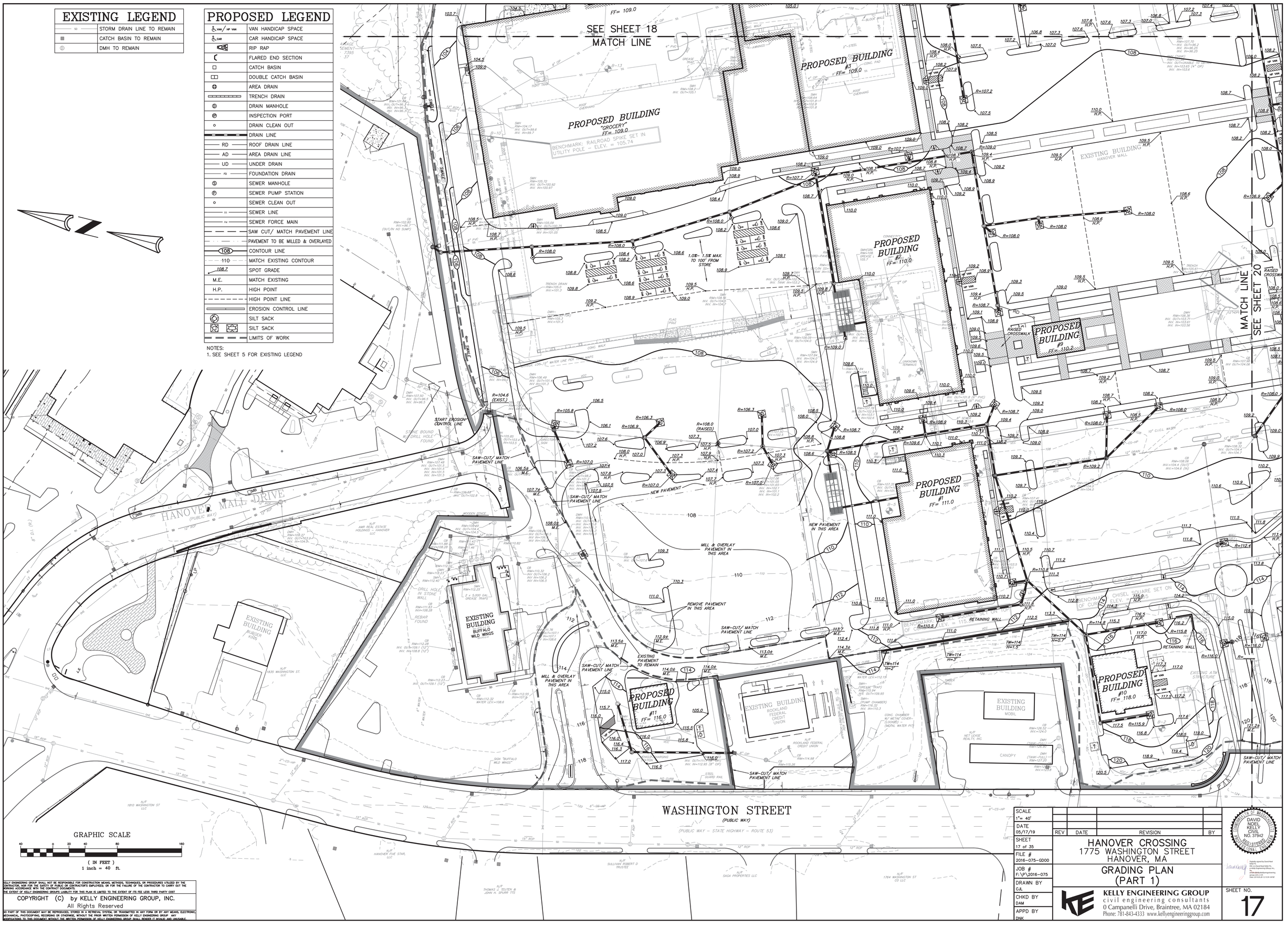
EXISTING LEGEND

SD	STORM DRAIN LINE TO REMAIN
	CATCH BASIN TO REMAIN
	DMH TO REMAIN

PROPOSED LEGEND

VAN / HP VAN	VAN HANDICAP SPACE
CAR	CAR HANDICAP SPACE
	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	AREA DRAIN
	TRENCH DRAIN
	DRAIN MANHOLE
	INSPECTION PORT
	DRAIN CLEAN OUT
	DRAIN LINE
RD	ROOF DRAIN LINE
AD	AREA DRAIN LINE
UD	UNDER DRAIN
FD	FOUNDATION DRAIN
S	SEWER MANHOLE
P	SEWER PUMP STATION
	SEWER CLEAN OUT
SS	SEWER LINE
FM	SEWER FORCE MAIN
	SAW CUT/ MATCH PAVEMENT LINE
	PAVEMENT TO BE MILLED & OVERLAYED
108	CONTOUR LINE
110	MATCH EXISTING CONTOUR
108.7	SPOT GRADE
M.E.	MATCH EXISTING
H.P.	HIGH POINT
	HIGH POINT LINE
	EROSION CONTROL LINE
	SILT SACK
	SILT SACK
	LIMITS OF WORK

NOTES:
1. SEE SHEET 5 FOR EXISTING LEGEND



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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SCALE	1" = 40'
DATE	05/17/19
SHEET	17 of 35
FILE #	2016-075-GD00
JOB #	F:\P\2016-075
DRAWN BY	CJL
CHKD BY	DAM
APPD BY	DNK

REV.	DATE	REVISION	BY

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly P.E.
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Date: 2019.05.20 12:13:55 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

GRADING PLAN (PART 1)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO.
17

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SHEET 18 of 35			
FILE # 2016-075-GD00			
JOB # F:\P\2016-075			
DRAWN BY CJL			
CHKD BY DAM			
APPD BY DNK			

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

GRADING PLAN
(PART 2)

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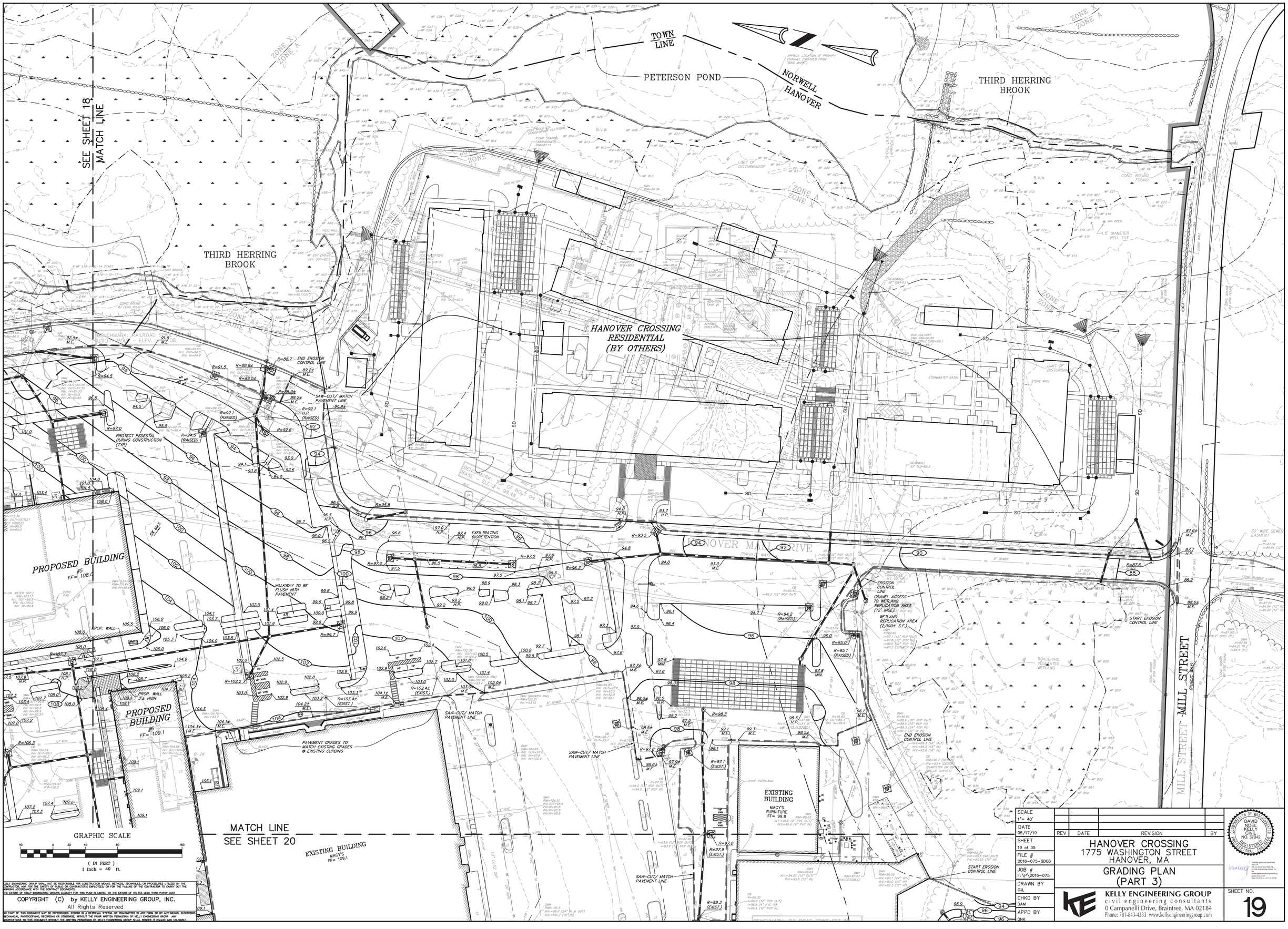
COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly
DN: cn=David Noel Kelly, c=US, o=Kelly Engineering Group, Inc., ou=Kelly Engineering Group, Inc., email=dkelly@kellyengineering.com
Date: 2019.05.20 12:14:06 -04'00'

SHEET NO.
18



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SCALE 1"= 40'				
DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 19 of 35				
FILE # 2016-075-GD00				
JOB # F:\P\2016-075				
DRAWN BY CJL				
CHKD BY DAM				
APPD BY DNK				

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

GRADING PLAN
(PART 3)

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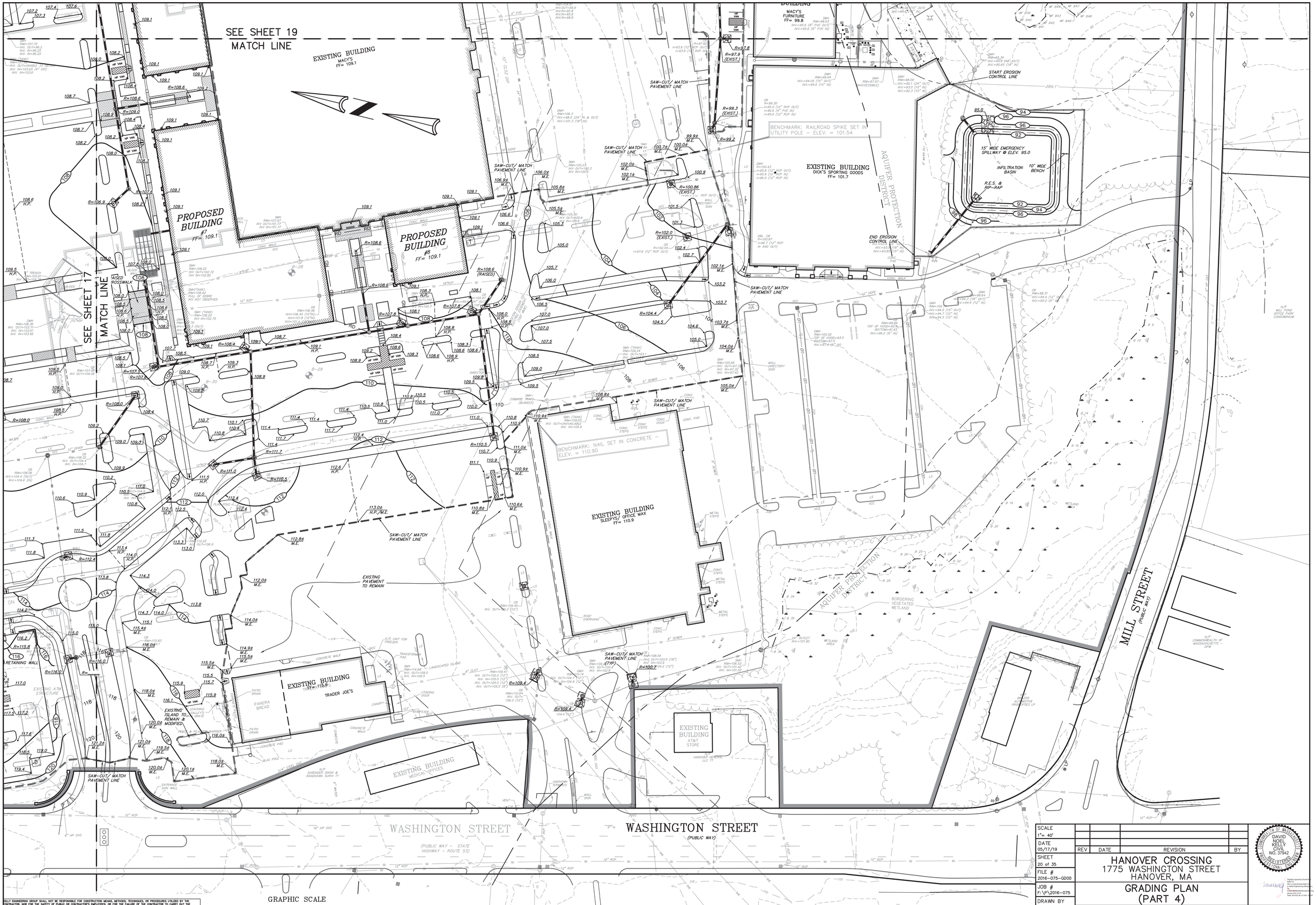
COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

SHEET NO.
19



SCALE 1"= 40'				
DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 20 of 35	HANOVER CROSSING 1775 WASHINGTON STREET HANOVER, MA			
FILE # 2016-075-GD00				
JOB # F:\P\2016-075	GRADING PLAN (PART 4)			
DRAWN BY CJL				
CHKD BY DAM				
APPD BY DNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly
DN: cn=David Noel Kelly, c=US, o=Kelly Engineering Group, ou=Civil, email=dkelly@kellyengineeringgroup.com
Date: 2019.05.20 12:10:07 -04'00'

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SHEET NO.
20

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FILE #			
2016-075-GD00			
JOB #			
F:\P\2016-075			
DRAWN BY			
CJL			
CHKD BY			
DAM			
APPD BY			
RNK			

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

GRADING PLAN (PART 5)

KELLY ENGINEERING GROUP
civil engineering consultants
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COMMONWEALTH OF MASSACHUSETTS — DAVID NOEL KELLY — CIVIL — NO. 37942 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly
DN: cn=David Noel Kelly, P.E., o=Kelly Engineering Group, Inc., ou, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.20 12:04:51 -04'00'

SHEET NO. 21

PROPOSED LEGEND

	RIP RAP
(	FLARED END SECTION
□	CATCH BASIN
□□	DOUBLE CATCH BASIN
⊕	AREA DRAIN
	TRENCH DRAIN
Ⓜ	DRAIN MANHOLE
Ⓘ	INSPECTION PORT
W.Q.D.	WATER QUALITY DEVICE
○	DRAIN CLEAN OUT
	DRAIN LINE
RD	ROOF DRAIN LINE
AD	AREA DRAIN LINE
UD	UNDER DRAIN
FD	FOUNDATION DRAIN
Ⓢ	SEWER MANHOLE
Ⓟ	SEWER PUMP STATION
○	SEWER CLEAN OUT
SS	SEWER LINE
FM	SEWER FORCE MAIN
V	SEWER VENT PIPE

NOTES:
1. ALL STRUCTURE INVERTS ARE LISTED WITH OUTLET FIRST THEN CLOCKWISE AROUND STRUCTURE.
2. FOR EXISTING SYMBOL LEGEND SEE SHEET 5

SEE SHEET 23 MATCH LINE

SEE SHEET 26 FOR CENTRAL AREA

MATCH LINE SEE SHEET 25

PROPOSED BUILDING #3 FF= 109.0

PROPOSED BUILDING #2 FF= 110.0

PROPOSED BUILDING #1 FF= 111.0

PROPOSED BUILDING #11 FF= 117.0

PROPOSED BUILDING #10 FF= 117.0

PROPOSED BUILDING #9 FF= 110.2

EXISTING BUILDING BURGER KING

EXISTING BUILDING BUFFALO WILD WINGS 1 STORY – BRICK FFE=113.2

EXISTING BUILDING ROCKLAND FEDERAL CREDIT UNION

EXISTING BUILDING MOBIL

BENCHMARK: RAILROAD SPIKE SET IN UTILITY POLE – ELEV. = 105.74

BENCHMARK: DRILL HOLE IN CURB – ELEV. = 113.32

HANOVER MALL DRIVE (PUBLIC WAY)

WASHINGTON STREET (PUBLIC WAY – STATE HIGHWAY – ROUTE 53)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SCALE	1"= 40'
DATE	05/17/19
SHEET	22 of 35
FILE #	2016-075-SD00
JOB #	F:\P\2016-075
DRAWN BY	CJL
CHKD BY	BGL
APPD BY	DNK

REV	DATE	REVISION	BY

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

SEWER & DRAINAGE PLAN (PART 1)

COMMONWEALTH OF MASSACHUSETTS – DAVID L. KELLY – NO. 37942 – REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David L. Kelly
DN: cn=David Noel Kelly, P.E., o=Kelly Engineering Group, Inc., ou, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.28 12:53:42 -04'00'

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SHEET NO. 22

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SCALE	1"= 40'
DATE	05/17/19
SHEET	23 of 35
FILE #	2016-075-SD00
JOB #	F:\P\2016-075
DRAWN BY	CJL
CHKD BY	BGL
APPD BY	DNK

REV	DATE	REVISION	BY

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

SEWER & DRAINAGE PLAN (PART 2)

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COMMONWEALTH OF MASSACHUSETTS
DONALD N. KELLY
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

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Date: 2019.05.28 13:55:07 -04'00'

SHEET NO.
23

SEE SHEET 23
MATCH LINE

TOWN LINE

PETERSON POND

NORWELL
HANOVER

THIRD HERRING BROOK

ZONE X
ZONE A

APPROX. LOCATION OF PRIMARY CHANNEL (DIGITIZED FROM "BING MAPS")

PETERSON POND SPILLWAY (APPROX.)

CONC. BOUND FOUND

1.5" DIAMETER WELL TILE

LIMIT OF DISTURBANCE

HANOVER CROSSING RESIDENTIAL (BY OTHERS)

PROP. WQD #5 (#G1)
RIM= 89.3±
INV= 82.2 (15" OUT)
INV= 82.2 (15" IN)

INV= 81.91 (EXIST.)

PROP. WQD #4 (#F1)
RIM= 94.7
INV= 86.5

CONVERT CB TO DMH #G2
RIM= 88.8± (EXIST.)
INV= 82.3 (15" OUT– EXIST)
INV= 84.6 (12" IN– NEW)
INV= 82.4 (24" IN– NEW)

15" RCP TO REMAIN

4' 12" HDPE @ 2.5%

PROP. CB #G2A
RIM= 88.7
INV= 84.7

32' 24" HDPE @ 0.7%

CONVERT EXIST. CB TO DMH #G3
RIM= 89.0±
INV= 82.6 (15" OUT– EXIST. TO BE REMOVED)
INV= 82.6 (24" OUT– NEW)
INV= 84.9 (12" IN– NEW)
INV= 82.7 (IN– EXIST.– TO REMAIN)
INV= 82.8 (24" IN– NEW)
INV= 82.8 (15" IN– EXIST. TO BE REMOVED)
INV= 82.6 (12" IN– EXIST.– TO REMAIN)

EXIST. CB #G3B
RIM= 89.6 (EXIST.)
INV= 84.8 (EXIST.)
INV= 85.8 (EXIST.)

DMH #G2
DMH #G3

21' 24" HDPE @ 2.0%

73' 12" HDPE @ 1.0%

PROP. CB #F3A
RIM= 94.5
INV= 92.0

5' 12" HDPE @ 20.0%

PROP. CB #G3A
RIM= 89.0
INV= 85.0

4' 12" HDPE @ 2.5%

PROP. CB #F6A
RIM= 97.0
INV= 94.0

25' 12" HDPE @ 2.0%

60' 12" HDPE @ 1.0%

EXIST. CB #G4B
RIM= 92.7 (EXIST.)
INV= 86.4 (EXIST.)

PROP. SMH #4
RIM= 99.1
INV= 95.5 (8" OUT)
INV= 95.6 (8" IN)

EXIST. DMH #G4
RIM= RAISED TO 92.0
INV= 83.8 (15" OUT– EXIST.– TO BE REMOVED)
INV= 83.0 (24" OUT– NEW)
INV= 83.8± (EXIST. OUT– TO REMAIN)
INV= 87.5 (12" IN– NEW)
INV= 83.5 (18" IN– NEW)
INV= 83.7 (15" IN– EXIST.– TO REMAIN)

PROP. DBL. CB #G4A
RIM= 91.5
INV= 88.0

PROP. WQD #6 (#H1)
RIM= 97.3
INV= 88.2 (21" OUT– EXIST.)
INV= 91.4 (12" IN)
INV= 88.2 (21" IN– EXIST.)

PROP. CB #H1A
RIM= 95.8
INV= 92.3

46' 12" HDPE @ 2.0%

PROP. W.Q.D. #7 (#H2)
RIM= 94.4
INV= 90.0 (12" OUT)
INV= 90.0 (12" IN)
INV= 90.0 (12" IN)

PROP. SEWER PRETREATMENT TANK– SEE WASTEWATER TREATMENT PLANS BY OTHERS

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS

PROP. CB #H2A
RIM= 97.0
INV= 93.5

PROP. CB #H2B
RIM= 96.3
INV= 92.8

PROP. CB #H2B
RIM= 97.0
INV= 93.5

124' 12" PERFORATED PVC @ 2.0%

PROP. DMH #12
RIM= 97.3
INV= 89.3 (21" OUT– EXIST.)
INV= 91.0 (12" IN)
INV= 89.3 (24" IN)
INV= 93.0 (12" IN)

25' 12" PERFORATED PVC @ 2.0%

87' 24" HDPE @ 0.5%

286' 8" PVC @ 0.5%

PROP. CB #G5A
RIM= 99.7
INV= 96.6

SS x SS XING
SS INV= 92.4± (8")
SD INV= 89.7 (24")

PROP. SMH #1
RIM= 97.0
INV= 91.3 (8" OUT)
INV= 91.4 (8" IN)
INV= 91.4 (8" IN)

PROP. DMH #13
RIM= 99.8
INV= 89.7 (24" OUT– NEW)
INV= 91.7 (21" IN– EXIST.)

PROP. SMH #2
RIM= 100.0
INV= 92.8 (8" OUT)
INV= 92.9 (8" IN)

86' 12" HDPE @ 1.0%

255' 8" PVC @ 0.5%

243' 18" HDPE @ 1.2%

4' 12" HDPE @ 2.5%

SS WYE
INV= 100.7±

4' 4" PVC @ 2.0%

SS x SD XING
SS INV= 94.3 (8")
SD INV= 96.0 (18")

PROP. SMH #3
RIM= 106.0
INV= 94.2 (8" OUT)
INV= 100.6 (6" DROP INLET)
INV= 94.3 (8" IN)
INV= 94.3 (8" IN)

PROP. CB #G6A
RIM= 107.3
INV= 103.8

SS x SS (EXIST.) XING
SD INV= 93.7 (8")
SS INV= 96.9 (12")

PROPOSED BUILDING
#5
FF= 108.0

PROP. 3,500 GAL. GREASE TRAP
INV= 100.8 (4" OUT)
INV= 101.0 (4" IN)

21' 8" PVC @ 2.0%

21' 12" HDPE @ 3.9%

PROP. DMH #G5
RIM= 100.0
INV= 95.2 (18" OUT)
INV= 95.7 (12" IN)
INV= 96.5 (12" IN)
INV= 95.2 (18" IN)

PROP. CB #G5B
RIM= 103.2
INV= 98.5

DMH #14

REPLACE EXISTING SEWER LINE

SS INV= 90.9

SS INV= 87.9

113' 8" PVC @ 0.5%

123' 8" PVC @ 0.4%

SD x SD XING
SD INV= 88.6 (12")
SD INV= 90.0 (21")

PROP. SEWER PRETREATMENT TANK– SEE WASTEWATER TREATMENT PLANS BY OTHERS

PROP. CB #I8A
RIM= 90.5
INV= 88.0

4' 12" HDPE @ 2.5%

PROP. DMH #I2
RIM= 97.0
INV= 93.5 (21" OUT)
INV= 93.5 (21" IN)

CONVERT CB TO DMH #I8
RIM= 93.0± (EXIST.)
INV= 87.8 (12" OUT– EXIST.)
INV= 87.9 (12" IN– EXIST.)
INV= 87.9 (12" IN– NEW)

PROP. SUBSURFACE RECHARGE SYSTEM (MACY'S FURNITURE)
#416 CULTEC 330XLHD
FINISH GRADE = 98.0±
TOP OF STONE= 96.5
TOP OF CHAMBER= 96.0
INV= 93.5
BOTTOM OF CHAMBER= 93.5
BOTTOM OF STONE= 93.0
ESHGW= 91.0

EXIST. SMH
RIM= 97.9± (EXIST.)
INV= 93.2 (8" OUT–INSIDE DROP)
INV= 95.0 (8" IN– EXIST.)

PROP. W.Q.D. #10
RIM= 98.3
INV= 93.5 (18" OUT)
INV= 93.6 (18" IN)

SD x SS XING
SD INV= 93.7 (18")
(CONCRETE HAUNCH)
SS INV= 92.5 (8")

NEW SEWER LINE

EXIST. SEWER LINE TO REMAIN

EXIST. SMH
RIM= 99.8± (EXIST.)
INV= 91.9 (8" OUT– NEW)
INV= 91.9 (8" IN– NEW)
INV= 92.2 (8" IN– EXIST.)
INV= 92.2 (8" IN– EXIST.)

CONVERT CB TO DMH #J5A
RIM= 97.8± (EXIST.)
INV= 94.8 (12" OUT– EXIST.)
INV= 94.9 (12" IN– NEW)
INV= 94.9 (12" IN– EXIST.)

DMH #15

EXIST. SMH
RIM= 104.2± (EXIST.)
INV= 93.7 (8" OUT)
INV= 93.7 (8" IN– TO BE CAPPED)

PROP. SMH #4
RIM= 99.1
INV= 95.5 (8" OUT)
INV= 95.6 (8" IN)

EXIST. DMH #G4
RIM= RAISED TO 92.0
INV= 83.8 (15" OUT– EXIST.– TO BE REMOVED)
INV= 83.0 (24" OUT– NEW)
INV= 83.8± (EXIST. OUT– TO REMAIN)
INV= 87.5 (12" IN– NEW)
INV= 83.5 (18" IN– NEW)
INV= 83.7 (15" IN– EXIST.– TO REMAIN)

PROP. CB #H1A
RIM= 95.8
INV= 92.3

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS

PROP. CB #H2A
RIM= 97.0
INV= 93.5

PROP. DMH #12
RIM= 97.3
INV= 89.3 (21" OUT– EXIST.)
INV= 91.0 (12" IN)
INV= 89.3 (24" IN)
INV= 93.0 (12" IN)

PROP. CB #G5A
RIM= 99.7
INV= 96.6

SS x SS XING
SS INV= 94.3 (8")
SD INV= 96.0 (18")

PROP. SMH #3
RIM= 106.0
INV= 94.2 (8" OUT)
INV= 100.6 (6" DROP INLET)
INV= 94.3 (8" IN)
INV= 94.3 (8" IN)

PROP. CB #G6A
RIM= 107.3
INV= 103.8

PROPOSED BUILDING
#6
FF= 109.1

PROP. DMH #G7
RIM= 108.0
INV= 100.1 (18" OUT)
INV= 100.5 (12" IN)
INV= 100.6 (12" IN)
INV= 100.6 (12" IN)

PROP. CB #G6B
RIM= 106.3
INV= 102.8

PROP. SUBSURFACE RECHARGE SYSTEM #6
#18 CULTEC 330XLHD
FINISH GRADE = 108.5±
TOP OF STONE= 106.0
TOP OF CHAMBER= 105.5
BOTTOM OF CHAMBER= 103.0
BOTTOM OF STONE= 102.5

EXIST. SMH
RIM= 104.2± (EXIST.)
INV= 93.7 (8" IN– TO BE CAPPED)

SS x SD XING
SS INV= 104.2 (6")
SD INV= 102.0 (12")

SS x SD XING
SS INV= 104.2 (4")
SD INV= 102.1 (12")

PROP. TRENCH DRAIN #G9A
RIM= 108.6
INV= 107.0

SS x SS XING
SS INV= 103.6 (12")
SS INV= 102.0 (6")

EXISTING BUILDING
MACY'S
FF = 109.1

MATCH LINE
SEE SHEET 25

PROP. SEWER PRETREATMENT TANK– SEE WASTEWATER TREATMENT PLANS BY OTHERS

FOR CONTINUATION OF STORM DRAIN SEE HANOVER CROSSING RESIDENTIAL PLANS (TYP)

SD x SS XING
SD INV= 88.7 (12")
SS INV= 87.2

PROP. CB #J6(SEE WASTEWATER TREATMENT PLANS)
RIM= 93.5
INV= 90.3

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS

PROP. W.Q.D. #7 (#I2)
RIM= 94.4
INV= 90.0 (12" OUT)
INV= 90.0 (12" IN)
INV= 90.0 (12" IN)

27' 12" HDPE @ 1.0%

204' 12" HDPE @ 1.0%

110' 8" PVC @ 3.5%

86' 12" HDPE @ 3.2%

CUT & CAP

PROP. DMH #1
RIM= 91.1
INV= 85.9 (36" OUT)
INV= 85.9 (36" IN)
INV= 87.9 (12" IN)

26' 36" HDPE @ 0.5%

CUT & CAP

120' 21" HDPE @ 5.8%

CB #I7A

DMH # I7

EXIST. CB
RIM= 90.5± (EXIST.)
INV= 86.8 (12" OUT– EXIST.)
INV= 87.0 (12" IN– TO BE CAPPED)

PROP. SEWER PRETREATMENT TANK– SEE WASTEWATER TREATMENT PLANS BY OTHERS

SD x SD XING
SD INV= 88.6 (12")
SD INV= 90.0 (21")

PROP. CB #I8A
RIM= 90.5
INV= 88.0

4' 12" HDPE @ 2.5%

PROP. DMH #I2
RIM= 97.0
INV= 93.5 (21" OUT)
INV= 93.5 (21" IN)

CONVERT CB TO DMH #I8
RIM= 93.0± (EXIST.)
INV= 87.8 (12" OUT– EXIST.)
INV= 87.9 (12" IN– EXIST.)
INV= 87.9 (12" IN– NEW)

PROP. SUBSURFACE RECHARGE SYSTEM (MACY'S FURNITURE)
#416 CULTEC 330XLHD
FINISH GRADE = 98.0±
TOP OF STONE= 96.5
TOP OF CHAMBER= 96.0
INV= 93.5
BOTTOM OF CHAMBER= 93.5
BOTTOM OF STONE= 93.0
ESHGW= 91.0

EXIST. SMH
RIM= 97.9± (EXIST.)
INV= 93.2 (8" OUT–INSIDE DROP)
INV= 95.0 (8" IN– EXIST.)

EXISTING BUILDING
FF= 99.8

PROP. CB #
RIM= 97.8
INV= 95.0

EXIST. DMH #J4 TO REMAIN
RIM= 97.5± (EXIST.)
INV= 92.5 (18" OUT– TO BE CAPPED)
INV= 93.9 (18" OUT– NEW)
INV= 93.9 (18" IN– NEW)
INV= 93.9 (12" IN– EXIST.)
INV= 93.9 (12" IN– EXIST.)

DMH #9

CB #8B

DMH #10

EXIST. SEWER LINE TO REMAIN

PROP. CB #J6A
RIM= 97.8
INV= 95.1

4' 12" HDPE @ 2.5%

CONVERT CB TO DMH #J6
RIM= 97.9± (EXIST.)
INV= 93.9 (12" OUT– TO BE REMOVED)
INV= 94.5 (18" OUT– NEW)
INV= 95.0 (12" IN– NEW)
INV= 93.9 (12" IN– TO BE REMOVED)
INV= 94.5 (18" IN– NEW)

CONVERT CB TO DMH #J7
RIM= 99.3 (EXIST.)
INV= 95.0 (18" OUT– NEW)
INV= 95.6 (4" IN– EXIST.)
INV= 95.6 (12" IN– EXIST.)
INV= 95.6 (12" IN– NEW)

98' 18" HDPE @ 0.5%

323' 8" PVC @ 0.4%

40' 18" HDPE @ 0.7%

SD x SS XING
SD INV= 85.7± (36")
SS INV= 83.0± (8")
(SEE WASTEWATER TREATMENT PLANS)

PROP. SEWER PRETREATMENT TANK– SEE WASTEWATER TREATMENT PLANS BY OTHERS

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS (INV= 87.5±)

SEE HANOVER CROSSING RESIDENTIAL FOR DRAIN CONNECTIONS

EXIST. DMH #J3
RIM= 90.7
INV=86.0 (36" OUT NEW)
INV= 86.5± (24" OUT– EXIST. CUT & CAP)
INV= 86.5± (24" IN– EXIST.)

PROP. DMH
RIM= 89.0
INV= 84.1 (OUT)
INV= 84.2 (12" IN)

PROP. CB/ WQD #9
RIM= 87.6
INV= 84.1

40' 12" HDPE @ 5.0%

CUT & CAP

35' 30" HDPE @ 0.5%

CUT & CAP

EXIST. 30" HDPE

EXIST. DMH #J1
RIM= 90.8± (EXIST.)
INV= 86.6 (24" OUT– EXIST.)
INV= 86.6 (30" IN– NEW)
INV= 86.6 (21" IN– NEW)
INV= 86.6 (12" IN– EXIST.)

PROP. WQD #8 (#J5)
RIM= 92.0±
INV= 86.7 (30" OUT– NEW)
INV= 86.7 (30" IN– EXIST.)

EXIST. DMH #6
RIM= 92.2± (EXIST.)
INV= 86.8 (30" OUT– EXIST.)
INV= 87.4 (30" IN– EXIST.)
INV= 87.2 (12" IN– EXIST.)

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS (INV= 80.7±)

40' 12" HDPE @ 5%

SD x SS XING
SD INV= 80.5±
SS INV= 85.0±

12" HDPE INV= 86.2

SD x SS XING
SD INV= 85.7± (36")
SS INV= 83.0± (8")
(SEE WASTEWATER TREATMENT PLANS)

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS (INV= 87.5±)

EXIST. DMH #3
RIM= 90.7
INV=86.0 (36" OUT NEW)
INV= 86.5± (24" OUT– EXIST. CUT & CAP)
INV= 86.5± (24" IN– EXIST.)

PROP. DMH
RIM= 89.0
INV= 84.1 (OUT)
INV= 84.2 (12" IN)

PROP. CB/ WQD #9
RIM= 87.6
INV= 84.1

40' 12" HDPE @ 5.0%

CUT & CAP

35' 30" HDPE @ 0.5%

CUT & CAP

EXIST. 30" HDPE

EXIST. DMH #J1
RIM= 90.8± (EXIST.)
INV= 86.6 (24" OUT– EXIST.)
INV= 86.6 (30" IN– NEW)
INV= 86.6 (21" IN– NEW)
INV= 86.6 (12" IN– EXIST.)

PROP. WQD #8 (#J5)
RIM= 92.0±
INV= 86.7 (30" OUT– NEW)
INV= 86.7 (30" IN– EXIST.)

EXIST. DMH #6
RIM= 92.2± (EXIST.)
INV= 86.8 (30" OUT– EXIST.)
INV= 87.4 (30" IN– EXIST.)
INV= 87.2 (12" IN– EXIST.)

PROP. SMH– SEE WASTEWATER TREATMENT PLANS BY OTHERS (INV= 80.7±)

40' 12" HDPE @ 5%

SD x SS XING
SD INV= 80.5±
SS INV= 85.0±

12" HDPE INV= 86.2

CONVERT CB TO DMH #I8
RIM= 93.0± (EXIST.)
INV= 87.8 (12" OUT– EXIST.)
INV= 87.9 (12" IN– EXIST.)
INV= 87.9 (12" IN– NEW)

PROP. DMH #I2
RIM= 97.0
INV= 93.5 (21" OUT)
INV= 93.5 (21" IN)

DMH #11

23' 12" HDPE @ 2.0%

MILL STREET
(PUBLIC WAY)

30' WIDE SEWER EASEMENT

STONE WALL

LIMIT OF DISTURBANCE

STORMWATER BASIN

2ND STORMWATER BASIN

BORDERING VEGETATED WETLAND

LS 1.5' ABOVE GRADE

SD

SS

GAS

OHE

WATER

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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SCALE 1"= 40'
DATE 05/17/19
SHEET 24 of 35
FILE # 2016-075-SD00
JOB # F:\P\2016-075
DRAWN BY CJL
CHKD BY BGL
APPD BY DNK

REV	DATE	REVISION	BY

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

SEWER & DRAINAGE PLAN (PART 3)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
DAVID N. DONAHUE
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David N. Donahue, P.E.
DN: cn=David N. Donahue, P.E., o=Kelly Engineering Group, Inc., email=dndonahue@kellyengineeringgroup.com, c=US
Date: 2019.05.28 12:53:07 -04'00'

SHEET NO.
24

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SCALE 1"= 40'				
DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 25 of 35				
FILE # 2016-075-SD00				
JOB # F:\P\2016-075				
DRAWN BY CJL				
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HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

SEWER & DRAINAGE PLAN
(PART 4)

KELLY ENGINEERING GROUP
civil engineering consultants
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Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
REGISTERED PROFESSIONAL ENGINEER
NO. 37942

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DN: cn=David Noel Kelly P.E., o=Kelly Engineering GRoup, Inc., ou, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.28 12:54:18 -04'00'

SHEET NO.
25

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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SHEET 26 of 35
FILE # 2016–075–SD00
JOB # F:\P\2016–075
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HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

SEWER & DRAINAGE PLAN (PART 5)

KELLY ENGINEERING GROUP
civil engineering consultants
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Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

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Date: 2019.05.28 12:52:33 -04'00'

SHEET NO.
26

EXISTING LEGEND

EX-SS	SEWER LINE
EX-G	GAS LINE
EX-W	WATER LINE
EX-UGE	UNDERGROUND ELECTRIC LINE
EX-T	TELECOMMUNICATIONS LINE
EX-SS	SEWER LINE (TO BE REMOVED)
EX-G	GAS LINE (TO BE REMOVED)
EX-W	WATER LINE (TO BE REMOVED)
EX-UGE	UNDERGROUND ELECTRIC LINE (TO BE REMOVED)
EX-T	TELECOMMUNICATIONS LINE (TO BE REMOVED)

PROPOSED LEGEND

	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
S	SEWER MANHOLE
SS	SEWER LINE
GV	GAS VALVE
G	GAS LINE
	HYDRANT
WV	WATER VALVE
W	WATER LINE
UGE	UNDERGROUND ELECTRIC LINE
T	TELECOMMUNICATIONS LINE
	LIGHT POLES
	PEDESTRIAN LIGHT

NOTES:
1. SEE SHEET 5 FOR EXISTING LEGEND

SEE SHEET 28
MATCH LINE

MATCH LINE
SEE SHEET 30

CONNECT NEW GAS SERVICE TO EXISTING GAS LINE

PROPOSED BUILDING "GROCERY"

PROPOSED BUILDING #3

PROPOSED BUILDING #2

PROPOSED BUILDING #1

PROPOSED BUILDING #10

PROPOSED BUILDING #11

EXISTING BUILDING
HANOVER MALL

EXISTING BUILDING
BURGER KING

EXISTING BUILDING
BUFFALO WILD WINGS
1 STORY - BRICK
FFE=113.2

EXISTING BUILDING
MOBIL

BENCHMARK: RAILROAD SPIKE SET IN UTILITY POLE - ELEV. = 105.74

FIRE LANE

NO PARKING

EXISTING LIGHT POLE TO REMAIN

EXISTING UTILITY POLE TO REMAIN

PROPOSED UTILITY POLE

PROPOSED 12" DICL

PROPOSED 6" DICL

PROPOSED 8" DICL

6" DICL @ HYDRANTS (TYP)

2" DOMESTIC
6" FIRE

1" DOMESTIC

6" DOMESTIC
2" FIRE

PROPOSED TRANSFORMER (10'x 10')

PROPOSED 1" COPPER

CONNECT ELECTRIC SERVICE TO EXISTING UTILITY POLE

CONNECT TO EXISTING GAS LINE

CONNECT TO EXISTING TELECOMMUNICATION MANHOLE

EXISTING WATER PIT TO BE ABANDONED

CUT & CAP EXISTING WATER LINE AT MAIN

CONNECT 12" DICL TO EXISTING 16" DICL WATER LINE

EXISTING 16 INCH WATER ON WASHINGTON ST.

HANOVER MALL DRIVE
(PUBLIC WAY)

WASHINGTON STREET
(PUBLIC WAY)
(PUBLIC WAY - STATE HIGHWAY - ROUTE 53)

NOTE: SEE SHEETS 8– 11 FOR UTILITY DEMOLITION

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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SCALE	1" = 40'
DATE	05/17/19
SHEET	27 of 35
FILE #	2016-075-UT00
JOB #	F:\P\2016-075
DRAWN BY	CJL
CHKD BY	BGL
APPD BY	DNK

REV.	DATE	REVISION	BY

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly
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Date: 2019.05.28 13:21:31 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

UTILITY PLAN (PART 1)

KELLY ENGINEERING GROUP
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Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO.
27

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

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SCALE			
1" = 40'			
DATE			
05/17/19	REV.	DATE	REVISION BY
SHEET			
28 of 35			
FILE #			
2016-075-UT00			
JOB #			
F:\P\2016-075			
DRAWN BY			
CJL			
CHKD BY			
BGL			
APPD BY			
DNK			

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

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Date: 2019.05.20 13:22:57 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

UTILITY PLAN (PART 2)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO.
28

SEE SHEET 28
MATCH LINE

TOWN LINE

PETERSON POND

NORWELL
HANOVER

THIRD HERRING BROOK

ZONE X
ZONE A

APPROX. LOCATION OF PRIMARY CHANNEL (DIGITIZED FROM "BING MAPS")

PETERSON POND SPILLWAY (APPROX.)

TOP OF BANK

POLE MOUNTED TRANSFORMER PLATFORM

B.V.W

LIMIT OF DISTURBANCE

GAS METER

FENCE

GLF

SLUDGE DRYING BED #1

SLUDGE DRYING BED #2

RAPID SAND FILTER #1

AERATION TANK #2

AERATION TANK #1

SECONDARY CLARIFIER

AEROBIC DIGESTOR

BLOWER BUILDING

GRAVEL

BITUMINOUS PAVING AREA

HANOVER CROSSING
RESIDENTIAL
(BY OTHERS)

PROPOSED WASTE WATER TREATMENT TANK (SEE PLANS BY OTHERS)

PROPOSED WASTE WATER TREATMENT TANK (SEE PLANS BY OTHERS)

AQUIFER PROTECTION DISTRICT

ELECTRIC SERVICE TO RESIDENTIAL DEVELOPMENT (SEE PLANS BY OTHERS)

GAS LINE TO RESIDENTIAL DEVELOPMENT (SEE PLANS BY OTHERS)

WATER LINE TO RESIDENTIAL DEVELOPMENT (SEE PLANS BY OTHERS)

EXISTING GUY POLE TO BE MODIFIED

EXISTING UTILITY POLE TO REMAIN

EXISTING GAS TO REMAIN

CONC. BOUND FOUND

1.5" DIAMETER WELL TILE

STONE WALL

LIMIT OF DISTURBANCE

BORDERING VEGETATED WETLAND

CONC. BOUND W/ DRILL HOLE FOUND

CONC. BOUND W/ DISK FOUND

EXISTING LIGHT POLE TO REMAIN

BENCHMARK: RAILROAD SPIKE SET IN UTILITY POLE ELEV. = 94.08

EXISTING LIGHT POLE TO BE RELOCATED

RELOCATED LIGHT POLE

EXISTING GUY POLE TO BE MODIFIED

PENCIL MARK: TOP OF BOLT ON TOWER ELEVATION = 98.16

EXISTING LIGHT POLE TO REMAIN

PROPOSED BIOSWALE

PROPOSED 12" DICL

CONNECT TO EXIST. GAS LINE

CONNECT TO EXISTING 8" WATER

RELOCATE EX. LIGHT/UTILITY POLE

RELOCATED LIGHT & UTILITY POLE

EXISTING UTILITY POLE TO REMAIN

EXISTING LIGHT POLE TO BE REMAIN

PROPOSED WASTE WATER PRE TREATMENT TANKS

EXISTING LIGHT POLE TO BE REMAIN

EXISTING GAS TO REMAIN

EXISTING UTILITY POLE TO REMAIN

EXISTING GAS TO REMAIN

EXISTING UTILITY POLE TO REMAIN

EXISTING UTILITY POLE TO REMAIN

EXISTING UTILITY POLE TO REMAIN

EXISTING UTILITY POLE TO REMAIN

EXISTING UTILITY POLE TO REMAIN

EXISTING GUY POLE TO BE MODIFIED

EXISTING UTILITY POLE TO REMAIN

EXISTING UTILITY POLE TO REMAIN

CAP WATER LINE

30' WIDE SEWER EASMENT

PROPOSED 12" DICL

MILL STREET
(PUBLIC WAY)

PROPOSED BUILDING #5

PROPOSED BUILDING #6

PROPOSED GAS METERS

2" DOMESTIC
6" FIRE

PROPOSED 8" DICL

PROPOSED 12" DICL

PROPOSED TRANSFORMER (10'x 10')

PROPOSED GAS METERS

CAP EXIST. WATER LINE

CONNECT TO EXISTING 10" WATER

EXISTING GAS LINE TO REMAIN ACTIVE

CONNECT TO EXIST. GAS LINE

EXISTING TRANSFORMER TO REMAIN ACTIVE

EXISTING WATER LINE TO REMAIN ACTIVE

EXISTING UGE TO REMAIN ACTIVE

EXISTING LIGHT POLE TO REMAIN

EXISTING BUILDING
MACY'S
FFE=109.0

EXISTING BUILDING
FFE=98.0

EXISTING LIGHT POLE TO REMAIN

EXISTING LIGHT POLE TO REMAIN

HANOVER MALL DRIVE

MATCH LINE
SEE SHEET 30

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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SCALE				
1" = 40'				
DATE	REV	DATE	REVISION	BY
05/17/19				
SHEET				
29 of 35				
FILE #				
2016-075-UT00				
JOB #				
F:\P\2016-075				
DRAWN BY				
CJL				
CHKD BY				
BGL				
APPD BY				
DNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37842
REGISTERED PROFESSIONAL ENGINEER

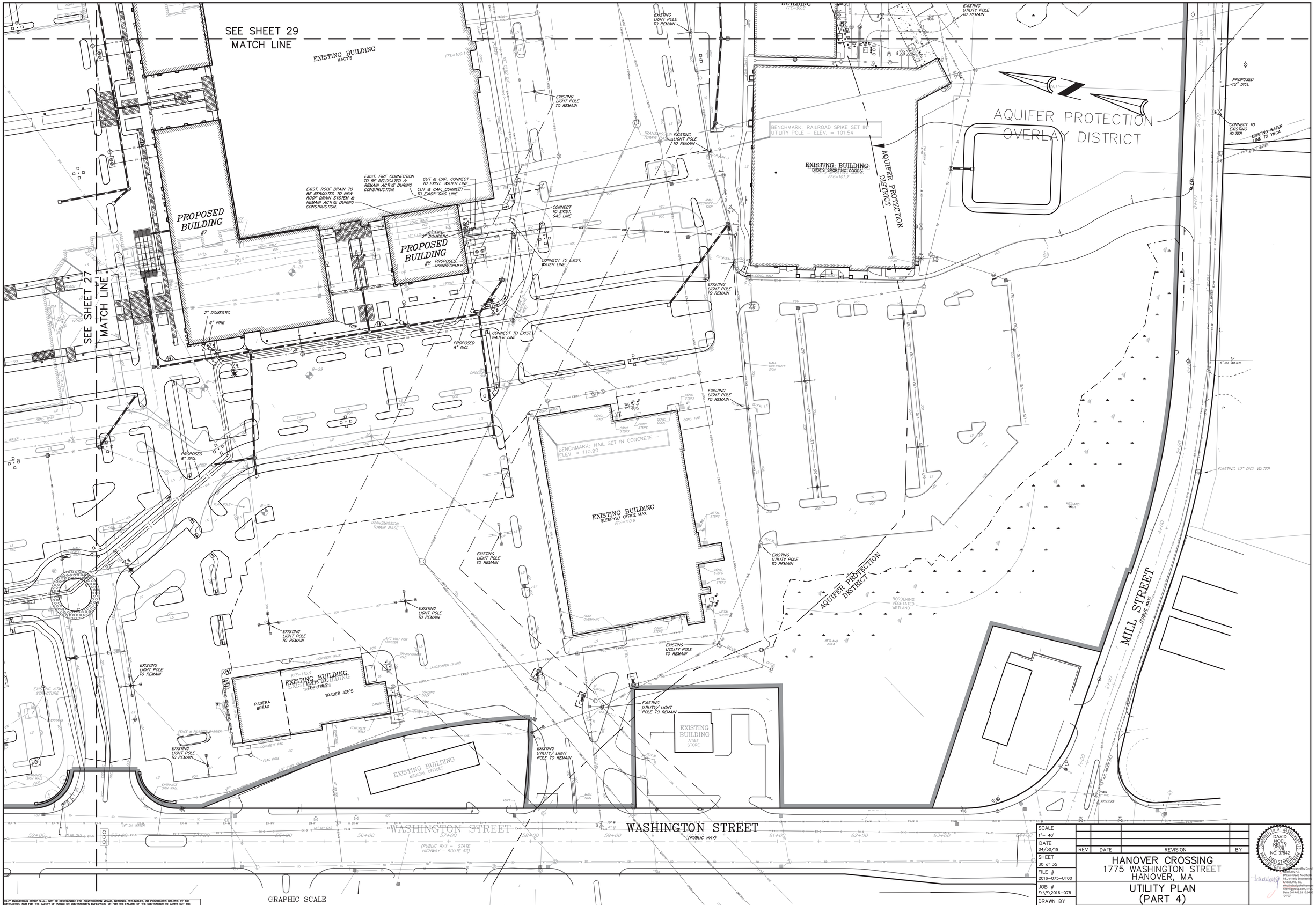
Digitally signed by David Noel Kelly P.E.
DN: cn=David Noel Kelly P.E., o=Kelly Engineering Group, Inc., ou, email=dkelly@kellyengineeringgroup.com, c=US
Date: 2019.05.28 13:25:22 -04'00'

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

UTILITY PLAN (PART 3)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

SHEET NO.
29



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DATE 04/30/19	REV	DATE	REVISION	BY
SHEET 30 of 35				
FILE # 2016-075-UT00				
JOB # F:\P\2016-075				
DRAWN BY CJL				
CHKD BY BGL				
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HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

UTILITY PLAN
(PART 4)

KELLY ENGINEERING GROUP
civil engineering consultants
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Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

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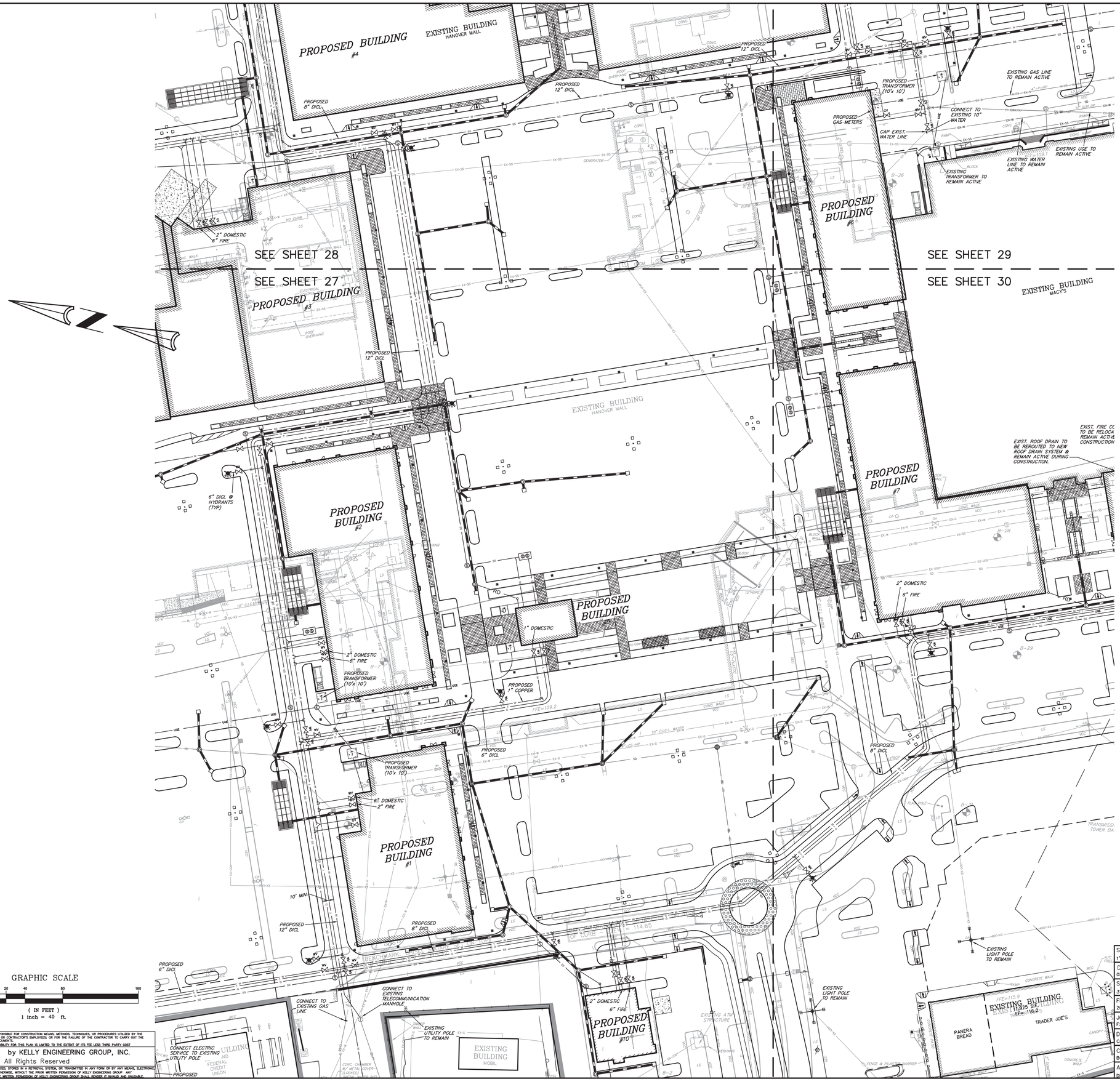
Date: 2019.05.28 12:24:52 -04'00'

SHEET NO.
30



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

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SHEET				
31 of 35				
FILE #				
2016-075-UT00				
JOB #				
F:\P\2016-075				
DRAWN BY				
CJL				
CHKD BY				
BGL				
APPD BY				
PNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

UTILITY PLAN (PART 5)

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
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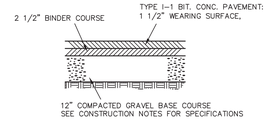
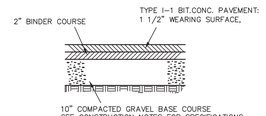
SHEET NO.
31



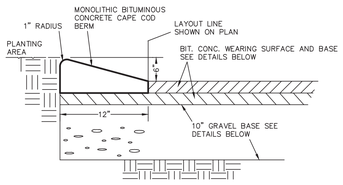
BITUMINOUS CONCRETE PAVEMENT (HEAVY DUTY)

NOT TO SCALE | KELLY ENGINEERING GROUP, INC.©



BITUMINOUS CONCRETE PAVEMENT (STANDARD)

NOT TO SCALE | KELLY ENGINEERING GROUP, INC.©



CAPE COD BERM DETAIL

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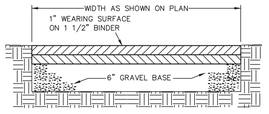

BITUMINOUS CONCRETE WALK DETAIL

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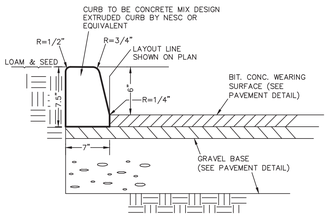

EXTRUDED CONCRETE CURB DETAIL

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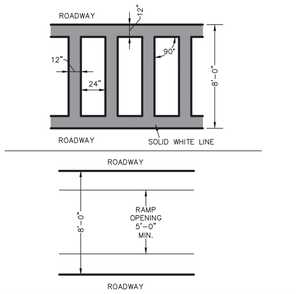

CROSSWALK STRIPING DETAIL

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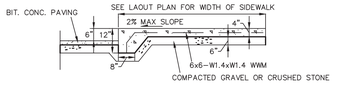

NOTE: PROVIDE EXPANSION JOINTS AT 25' O.C.

INTEGRAL SIDEWALK/ CURB DETAIL

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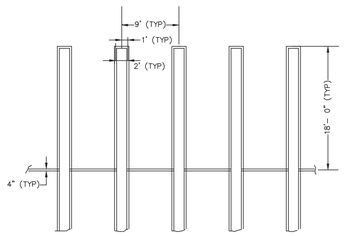

STRIPING SHALL BE 4" WIDE STRAIGHT LINES
OF WHITE TRAFFIC PAINT, TO BE INSTALLED AS
SHOWN ON LAYOUT AND ZONING PLAN

TYPICAL STRIPING DETAIL

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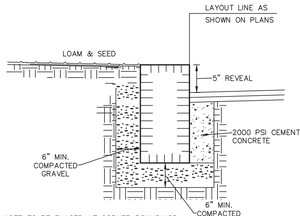

NOTE: TO BE PLACED AT CORNER ROUNDINGS
AT INTERSECTIONS.

GRANITE CURBING TO CONFORM TO VA4
TYPE PER DEPT. OF PUBLIC WORKS, MASS.
STANDARD SPECIFICATIONS FOR HIGHWAYS
AND BRIDGES, M9.04.1

VERTICAL GRANITE CURB DETAIL

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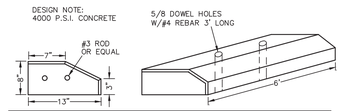

CURB STOP DETAIL

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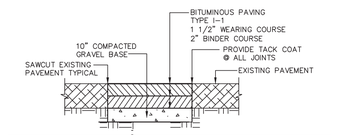

PAVEMENT MATCH/ SAW-CUT DETAIL

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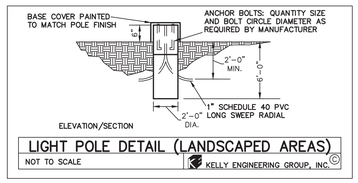

LIGHT POLE DETAIL (LANDSCAPED AREAS)

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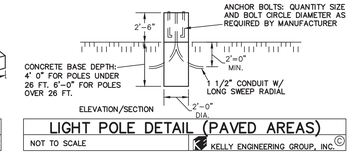

LIGHT POLE DETAIL (PAVED AREAS)

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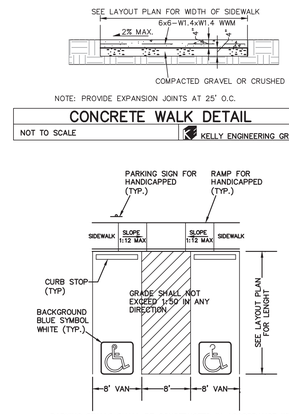

PARKING STALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REQUIREMENTS

HANDICAP PARKING DETAIL

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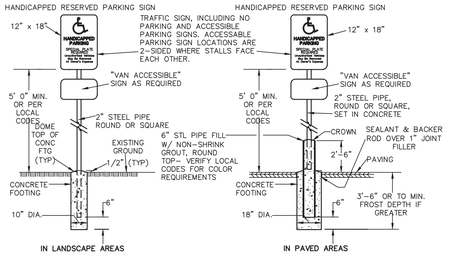

NOTE: 1. SIGN LAYOUT, COLORS, SYMBOL AND LETTERING SHALL BE STANDARD.
2. TO BE LOCATED ON SITE AS DIRECTED.
3. TO BE LOCATED AT APPROPRIATE SPACES.

HANDICAP SIGN DETAIL

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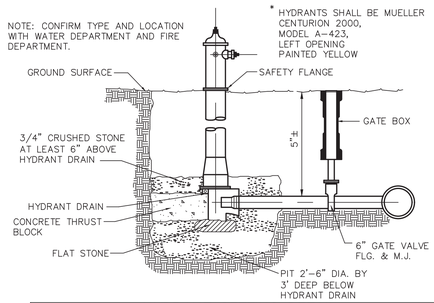

HYDRANT SETTING DETAIL

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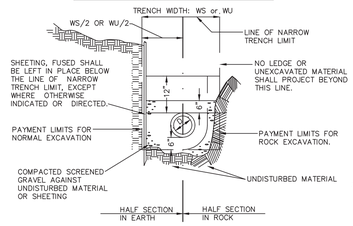
TRENCH WIDTH WS OR WU

DIAM. OF PIPE	WU UNSHEETED	WS SHEETED
12" AND SMALLER	3'-0"	4'-2"
15" AND LARGER	O.D.+20"	O.D.+36"



WATER AND SEWER TRENCH SECTION

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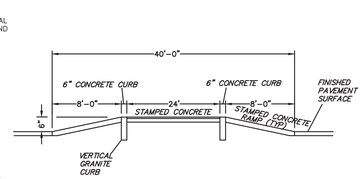
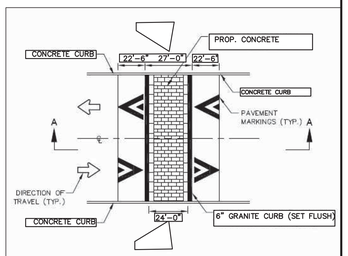
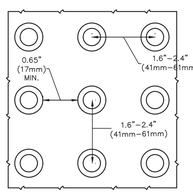


SECTION "A-A"
NO TO SCALE

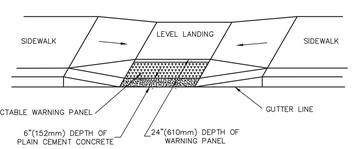


DETAIL FOR RAISED CROSSWALK

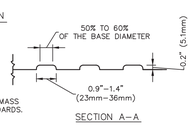
NOT TO SCALE



DETAIL OF DETECTABLE WARNING PANEL



TYPICAL INSTALATION



SECTION A-A

NOTE: PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT

FOR MORE INFORMATION SEE MASS HIGHWAY CONSTRUCTION STANDARDS. DRAWING # M/E 107.6.S

DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS

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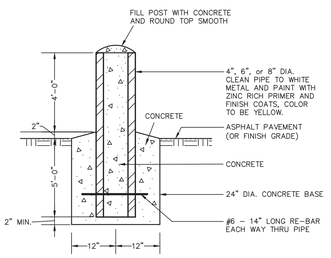

CONCRETE FILLED PIPE BOLLARD

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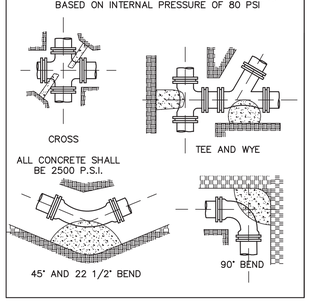
THRUST BLOCK SCHEDULE

TABLE OF MINIMUM BEARING AREA IN SQ. IN. AGAINST UNDISTURBED SOIL FOR 8 IN. DIA. PIPE

SOIL BEARING CAPACITY(PSF)	90 DEGREE BEND	TEE	45 DEGREE BEND
1000	945	674	516
1500	630	450	344
2000	473	337	258
3000	315	225	172

NOTE: FOR FITTINGS W/LESS THAN 45° DEFLECTION USE BEARING AREA FOR 45° BEND BASED ON INTERNAL PRESSURE OF 80 PSI



THRUST BLOCK

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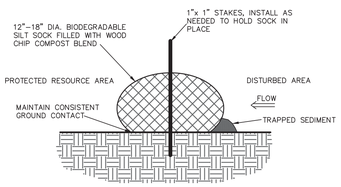

SILT SOCK LINE DETAIL

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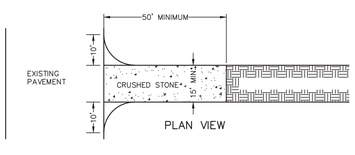

CROSS SECTION

TRACKING PAD NOTES:
1. STONE SIZE - USE 2" CRUSHED STONE

2. FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

3. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHOULD BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM SHOULD BE PERMITTED.

4. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANING OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

CONSTRUCTION TRACKING PAD

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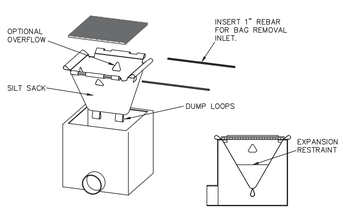

SILT SACK- TYPE A DETAIL

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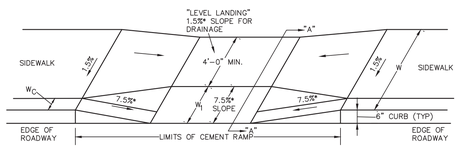
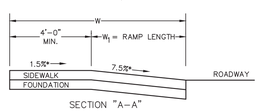


LEGEND
W = SIDEWALK WIDTH
W_1= PERPENDICULAR RAMP LENGTH
W_c= CURB WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
USABLE SIDEWALK WIDTH PER ABB= $W-W_c$
RAMP LENGTH, $W_1 = W-(4'-0")$ MIN.



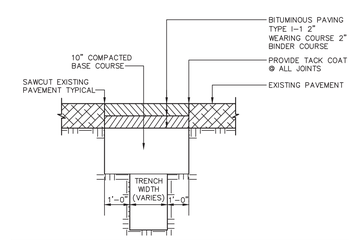
SECTION "A-A"

NOTE:
DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN., A HEIGHT OF NOMINAL 0.2 IN. AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

FOR MORE INFORMATION SEE MASS HIGHWAY CONSTRUCTION STANDARDS. DRAWING # M/E 107.2.0

WHEELCHAIR RAMPS

NOT TO SCALE | KELLY ENGINEERING GROUP, INC.©



TRENCH PATCHING DETAIL

NOT TO SCALE | (TRENCH-PATCH) | KELLY ENGINEERING GROUP, INC.©

CONSTRUCTION NOTES

A1. THE CONTRACTOR SHALL REPORT TO THE OWNER AND ENGINEER OF ANY SIGNIFICANT VARIATIONS IN EXISTING SITE CONDITIONS FROM THOSE SHOWN ON THESE PLANS. ANY PROPOSED REVISIONS TO THE WORK, IF REQUIRED BY THESE SITE CONDITIONS, SHALL NOT BE UNDERTAKEN UNTIL REVIEWED AND APPROVED BY THE OWNER AND THE ENGINEER.

A2. THE CONTRACTOR SHALL NOTIFY THE TOWN OF HANOVER DEPARTMENT OF PUBLIC WORKS AT LEAST 48 HOURS IN ADVANCE OF ANY REQUIRED INSPECTIONS.

A3. IN ORDER TO PROTECT THE PUBLIC SAFETY DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING AT ALL TIMES ALL NECESSARY SAFETY DEVICES AND PERSONNEL, WARNING LIGHTS, BARRICADES, AND POLICE OFFICERS.

A4. ALL WORK SHALL CONFORM TO A SPECIAL PERMIT TO BE ISSUED BY THE TOWN OF HANOVER AND TOWN OF NORWELL.

A5. FOR ANY PROJECT THAT INVOLVES 1 ACRE OR MORE OF DISTURBANCE CONTRACTOR SHALL SECURE A NPDES GENERAL CONSTRUCTION PERMIT PRIOR TO BEGINNING ANY GRADING ACTIVITIES.

A6. ALL WORK SHALL CONFORM TO AN ORDER OF CONDITIONS TO BE ISSUED BY THE TOWN OF HANOVER AND TOWN OF NORWELL.

A7. ALL WORK SHALL CONFORM TO THE GEOTECHNICAL REPORT.

A8. THE LOCATION OF UNDERGROUND UTILITIES AS REPRESENTED ON THESE PLANS IS BASED UPON PLANS AND INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES OR MUNICIPAL DEPARTMENTS SUPPLEMENTED BY FIELD IDENTIFICATION WHEREVER POSSIBLE. NO WARRANTY IS MADE AS TO THE ACCURACY OF THESE LOCATIONS OR THAT ALL UNDERGROUND UTILITIES ARE SHOWN. THE CONTRACTOR SHALL CONTRACT DIG SAFE AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. DIG SAFE TELEPHONE NUMBER IS 1-888-344-7233.

A9. THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO TAPPING INTO, CROSSING OR EXTENDING THEM. IF THE NEW WORK POSES A CONFLICT WITH EXISTING UTILITIES, THE ENGINEER SHALL BE NOTIFIED PRIOR TO THE CONTRACTOR CONTINUING.

A10. REFER TO ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSION AND DOOR LOCATIONS.

A11. BENCHMARK ELEVATION IS SHOWN ON EXISTING CONDITIONS PLAN. DATUM IS NAVD88.

A12. ALL PROPOSED SITE GAS, ELECTRIC, TELEPHONE, CATV FEATURES SHOWN ON SITE DEVELOPMENT PLANS ARE INTENDED AS A GUIDE ONLY. FINAL CONFIGURATION TO BE CONFIRMED WITH PROJECT MEP ENGINEER AND UTILITY PROVIDER.

B1. REFER TO PLUMBING PLANS FOR EXACT SIZE AND LOCATION OF SANITARY AND WATER CONNECTIONS.

B2. REFER TO ELECTRICAL PLANS FOR THE LIGHTING CIRCUITS, FIXTURE DETAIL AND BUILDING CONNECTION LOCATION.

B3. ALL H.D.P.E. HIGH DENSITY POLYETHYLENE PIPE SHALL BE ADS N-12 OR APPROVED EQUAL. SEWER SHALL BE SDR 35 WITH RUBBER RING JOINTS. WATER LINES SHALL BE CL 52 D.I.P. (DUCTILE IRON PIPE), REINFORCED CONCRETE PIPE RCP SHALL BE CLASS III.

B4. NO LEDGE, BOULDERS, OR OTHER UNYIELDING MATERIALS ARE TO BE LEFT WITHIN 6" OF THE SEWER IN THE TRENCH, NOR ARE THEY TO BE USED FOR BACKFILL FOR THE FIRST 12" ABOVE THE PIPES.

C1. WALKS SHALL BE 4" THICK AND SHALL BE CONSTRUCTED ON 6" OF COMPACTED BANK GRAVEL. CONCRETE FOR WALKS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. WALKS SHALL BE REINFORCED WITH WWM 6x 6 W1.4/W1.4 CONFORMING TO ASTM A184.

C2. BASE MATERIAL SHALL BE CLEAN BANK RUN GRAVEL, CONFORMING TO M.D.P.W. M1.03.1, WITH NO STONES LARGER THAN THREE (3) INCHES IN DIAMETER AND SHALL BE PLACED AND ROLLED WITH AT LEAST A TEN TON ROLLER. THE SUBGRADE SHALL BE WET DURING ROLLING TO BIND THE MATERIAL. ALL STONES OF 4" DIAMETER OR LARGER SHALL BE REMOVED FROM THE SUB-BASE PRIOR TO PLACING BASE MATERIAL.

C3. TRANSFORMER PAD SHALL BE INSTALLED PER PROVIDERS SPECIFICATIONS. GENORATOR PADS SHALL BE INSTALLED PER MANUFACTURING SPECIFICATIONS.

C4. PAVEMENT AREA SHALL BE PAVED TO A THICKNESS AS SHOWN ON THE PLANS MEASURED AFTER COMPACTION, WITH A BINDER COURSE AND TOP COURSE OF CLASS I BITUMINOUS CONCRETE PAVEMENT, TYPE I-1.

C5. THE AGGREGATE SHALL BE COMPOSED, MIXED AND LAID HOT IN TWO COURSES AS SPECIFIED IN THE "COMMONWEALTH OF MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGE", 1988 EDITION. SECTION 460 FOR CLASS I BITUMINOUS CONCRETE PAVEMENT, AS SPECIFICALLY SET FORTH IN SECTION 460.20 AND 460.82.

C6. DUMPSTER PAD SHALL BE 8" THICK REINFORCED CONCRETE SLAB WITH CONTROL JOINTS EVERY 10'. THE PAD SHALL BE CONSTRUCTED OVER 6" OF GRAVEL BASE, COMPACT TO 95% REINFORCEMENT SHALL BE WWF 6x6- W1.4 x W1.4 PLACED AT THE CENTER OF THE SLAB. THE FRONT END OF COMPACTOR PAD SHALL HAVE EMBEDDED A 6"x 6"x 3/8" STEEL ANGLE.

C7. THE DOLLY PADS SHALL BE 6" THICK REINFORCED CONCRETE SLABS WITH CONTROL JOINTS EVERY 10' AND ISOLATION JOINTS WHERE SLAB ABUTS BUILDING. THE PADS SHALL BE CONSTRUCTED OVER 12" OF GRAVEL BASE COMPACTED TO 95% REINFORCEMENT SHALL BE WWF 6 x 6- 2 W1.4 x W1.4 PLACED AT CENTER OF SLAB.

C8. ALL EXISTING PAVING TO BE DISTURBED SHALL BE CUT ALONG A STRAIGHT LINE THROUGH ITS ENTIRE THICKNESS. BUTT NEW PAVING INTO THE EXISTING PAVEMENT TO REMAIN AND TACK COAT THE JOINT.

C9. ANY PAVEMENT REMOVED FOR UTILITY TRENCH EXCAVATION OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH A PAVEMENT SECTION CONSISTING OF 1 1/2" WEARING COURSE OVERLAYING A 2" BINDER COURSE OVERLAYING A 10" COMPACTED GRAVEL BASE COURSE.

D1. ALL AREAS TO BE PLANTED WITH GRASS SHALL BE TREATED WITH 100 POUNDS OF GROUND LIMESTONE PER 1,000 S.F. OF AREA PLANTED. ALL AREAS TO BE PLANTED WITH GRASS SHALL BE FERTILIZED WITH 10-10-10 AT THE RATE OF 1,000 POUNDS PER ACRE OR AS REQUIRED BY SOIL TEST. 40% OF THE NITROGEN SHALL BE ORGANIC FORM.

D2. ALL LANDSCAPED AREAS TO BE LOAMED AND SEEDED SHALL HAVE THE FOLLOWING MIX.

PERENNIAL RYE	25%
KENTUCKY BLUE	25%
CREEPING RED FESCUE OR PENNLAWN FESCUE	50%

SEED AT THE RATE OF 5#/1,000 S.F.

D3. ALL AREAS INDICATED TO BE LOAMED AND SEEDED SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL SPREAD EVENLY THROUGHOUT. PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO PROVIDE SLOPE STABILITY UNTIL VEGETATION IS ESTABLISHED.

KELLY ENGINEERING GROUP SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, OR PROCEDURES UTILIZED BY THE CONTRACTOR, NOR FOR THE SAFETY OF PERSONS OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
THE EXTENT OF KELLY ENGINEERING GROUP'S LIABILITY FOR THIS PLAN IS LIMITED TO THE EXTENT OF ITS FEE LESS THIRD PARTY COST

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DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 32 of 35				
FILE # 2016-075-DT00				
JOB # F:\P\2016-075				
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CHKD BY BGL				
APPD BY DNK				

HANOVER CROSSING
1775 WASHINGTON STREET
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DETAIL SHEET

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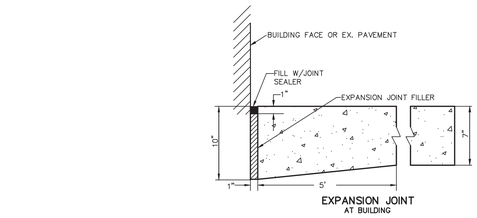
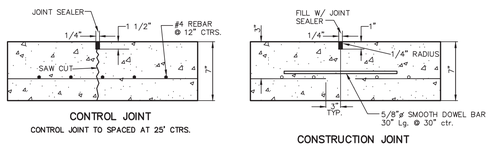
SHEET NO. 32



EXPANSION JOINT
AT BUILDING



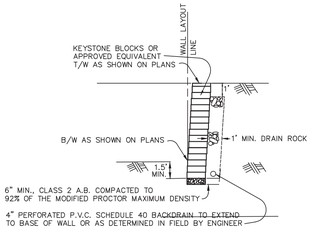
CONTROL JOINT
CONTROL JOINT TO SPACED AT 25' CTRS.

CONSTRUCTION JOINT

THE CONCRETE PADS SHALL BE 7" THICK REINFORCED CONCRETE SLABS WITH CONTROL JOINTS EVERY 25', AND CONSTRUCTION JOINTS EVERY 100'. CONCRETE FOR PADS SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 4000 PSI. THE PADS SHALL BE CONSTRUCTED OVER 12" OF GRAVEL BASE COMPACTED TO 95% .

CONCRETE PAD DETAIL

NOT TO SCALE	(CONCRETE-PAD-DETAIL)	KELLY ENGINEERING GROUP, INC. ©



NOTES

GEOGRID LENGTHS AND LOCATIONS SHALL BE DETERMINED BY MANUFACTURER'S SHOP DRAWINGS

SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL BE PREPARED BY MANUFACTURER AND SUBMITTED TO ENGINEER FOR APPROVAL

WALL TO BE CONSTRUCTED PER MANUFACTURER'S SPECIFICATIONS

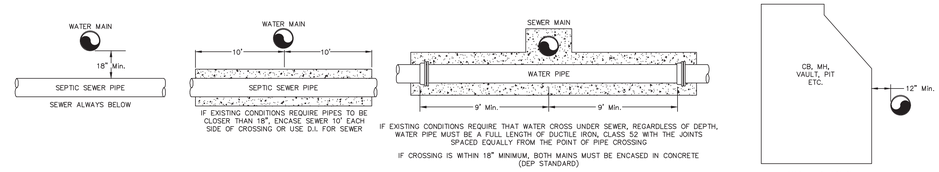
GEOGRID SHALL BE TENSAR UX1500 OR APPROVED EQUAL

WALLS WITH HEIGHT EXCEEDING 4' SHALL HAVE HANDRAILS

ALL NON TYPE-1 RETAINING WALLS SHALL BE POURED CONCRETE AND BE DESIGNED BY THE PROJECT STRUCTURAL ENGINEER

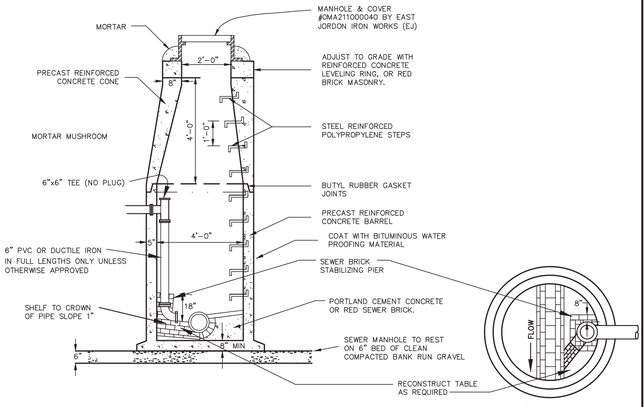
RETAINING WALL DETAIL TYPE-1

(RETAINING-WALL)	NOT TO SCALE	KELLY ENGINEERING GROUP, INC. ©



WATER / SEWER CROSSINGS

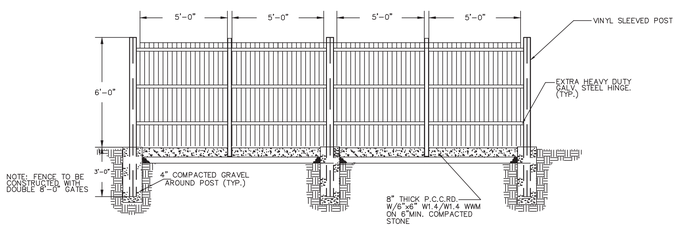
WATER PIPE
CLEARANCE TO STUCTURES

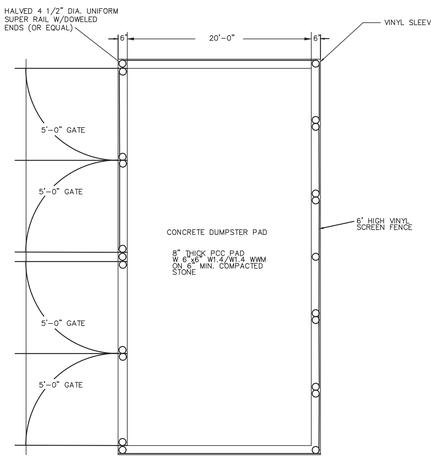


TOP VIEW
NOT TO SCALE

INSIDE DROP CONNECTION SEWER MANHOLE DETAIL

(INSIDE-DROP-SEWER-MH)	NOT TO SCALE	KELLY ENGINEERING GROUP, INC. ©





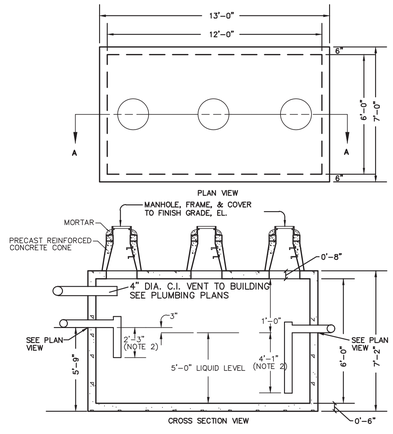
DUMPSTER SCREEN GATE /DUMPSTER PAD DETAIL

NOT TO SCALE	(DUMPSTER-DETAIL)	KELLY ENGINEERING GROUP, INC. ©

AS SHOWN ON "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS" REVISED MAY 2012.

R1-1 SIGN

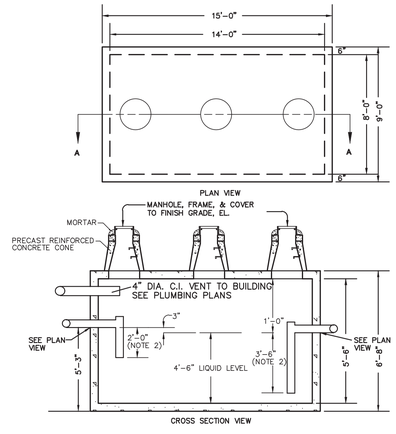
NOT TO SCALE	KELLY ENGINEERING GROUP, INC. ©



NOTE:
1. VENT SHALL BE PIPED TO THE INSIDE OF THE BUILDING IN COMPIANCE WITH 248 CMR 10.16(5)(E)'. VENT SHALL BE ABOVE WATER LEVEL AND INVERTS.
2. THE INLET TEE SHALL EXTEND TO THE MID DEPTH OF THE TANK. THE OUTLET TEE SHALL EXTEND TO WITHIN 12 INCHES OF THE BOTTOM OF THE TANK. TEES SHALL BE SCHEDULE 40 PVC AND PROPERLY SUPPORTED BY A HANGER, STRAP OR OTHER DEVICE. (310 CMR 15.230(5))
3. SHALL BE INSTALLED ON A LEVEL STABLE BASE THAT HAS BEEN MECHANICALLY COMPACTED AND ONTO WHICH 6 INCHES OF CRUSHED STONE HAS BEEN PLACED TO MINIMIZE UNEVEN SETTLING.
4. THE INLET AND OUTLET SHALL BE LOCATED AT THE CENTER LINE OF THE TANK, AND AT LEAST 12 INCHES ABOVE THE HIGH GROUNDWATER ELEVATION.

2,500 GALLONS PRECAST GREASE TRAP

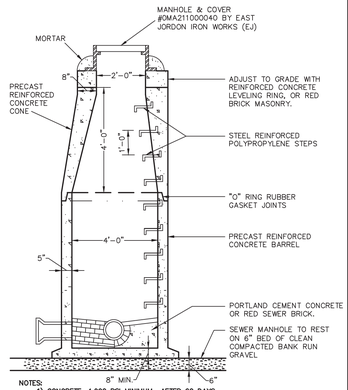
NOT TO SCALE	KELLY ENGINEERING GROUP, INC ©



NOTE:
1. VENT SHALL BE PIPED TO THE INSIDE OF THE BUILDING IN COMPIANCE WITH 248 CMR 10.16(5)(E)'. VENT SHALL BE ABOVE WATER LEVEL AND INVERTS.
2. THE INLET TEE SHALL EXTEND TO THE MID DEPTH OF THE TANK. THE OUTLET TEE SHALL EXTEND TO WITHIN 12 INCHES OF THE BOTTOM OF THE TANK. TEES SHALL BE SCHEDULE 40 PVC AND PROPERLY SUPPORTED BY A HANGER, STRAP OR OTHER DEVICE. (310 CMR 15.230(5))
3. SHALL BE INSTALLED ON A LEVEL STABLE BASE THAT HAS BEEN MECHANICALLY COMPACTED AND ONTO WHICH 6 INCHES OF CRUSHED STONE HAS BEEN PLACED TO MINIMIZE UNEVEN SETTLING.
4. THE INLET AND OUTLET SHALL BE LOCATED AT THE CENTER LINE OF THE TANK, AND AT LEAST 12 INCHES ABOVE THE HIGH GROUNDWATER ELEVATION.

3,500 GALLONS PRECAST GREASE TRAP

NOT TO SCALE	KELLY ENGINEERING GROUP, INC ©



NOTES:
1) CONCRETE, 4,000 PSI MINIMUM AFTER 28 DAYS.
2) REINFORCED STEEL TO CONFORM TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3) H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC. FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4) STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP TO CONFORM TO LATEST ASTM C478 SPEC.
5) BUTYL RESIN SECTION JOINT TO CONFORM TO LATEST ASTM C990 SPEC.

SEWER MANHOLE DETAIL

NOT TO SCALE	KELLY ENGINEERING GROUP, INC. ©

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THE EXTENT OF KELLY ENGINEERING GROUPS LIABILITY FOR THIS PLAN IS LIMITED TO THE EXTENT OF ITS FEE LESS THIRD PARTY COST

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CJL				
CHKD BY				
BGL				
APPD BY				
DNK				

HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

DETAIL SHEET

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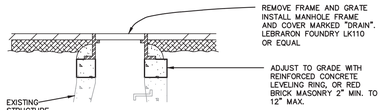
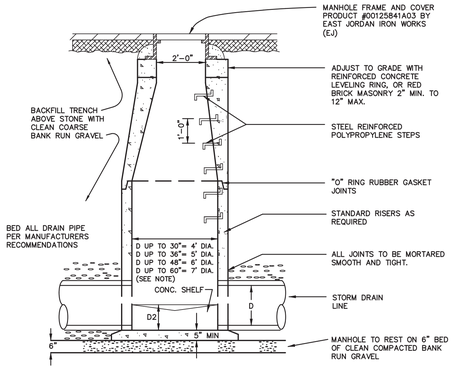
COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

SHEET NO.
33



CATCH BASIN TO MANHOLE CONVERSION DETAIL

NOT TO SCALE | (PRECAST–DRAIN–MANHOLE) | KELLY ENGINEERING GROUP, INC ©

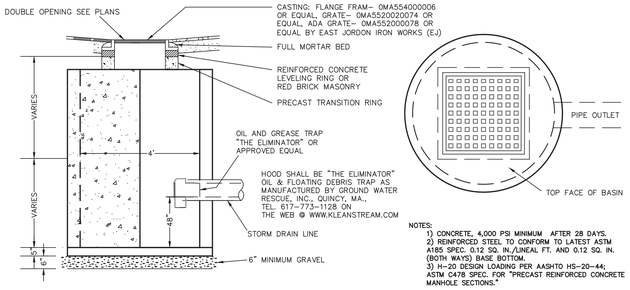


NOTES:
1) CONCRETE, 4,000 PSI MINIMUM AFTER 28 DAYS.
2) REINFORCED STEEL TO CONFORM TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3) H–20 DESIGN LOADING PER AASHTO HS–20–44; ASTM C478 SPEC. FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4) STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP TO CONFORM TO LATEST ASTM C478 SPEC.

NOTE: CONFIGURATIONS W/ MULTIPLE INLETS MAY REQUIRE LARGER STRUCTURES

PRECAST DRAIN MANHOLE DETAIL

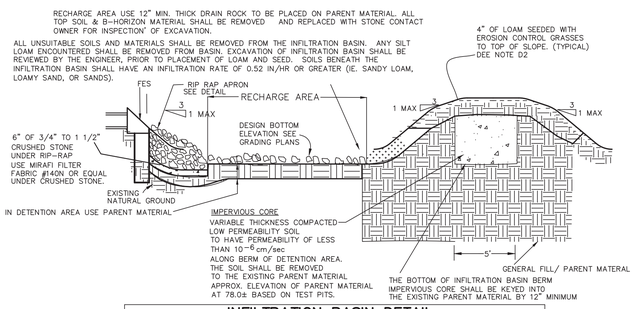
NOT TO SCALE | KELLY ENGINEERING GROUP, INC. ©



NOTES:
1) CONCRETE, 4,000 PSI MINIMUM AFTER 28 DAYS.
2) REINFORCED STEEL TO CONFORM TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3) H–20 DESIGN LOADING PER AASHTO HS–20–44; ASTM C478 SPEC. FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."

PRECAST CATCH BASIN DETAIL

NOT TO SCALE | KELLY ENGINEERING GROUP, INC. ©



INFILTRATION BASIN DETAIL

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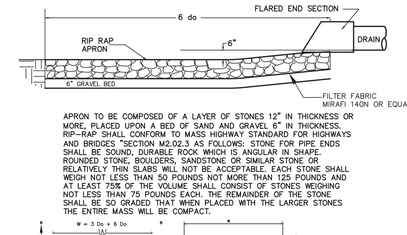

APRON TO BE COMPOSED OF A LAYER OF STONES 12" IN THICKNESS OR MORE, PLACED UPON A BED OF SAND AND GRAVEL 6" IN THICKNESS. RIP–RAP SHALL CONFORM TO MASS HIGHWAY STANDARD FOR HIGHWAYS AND BRIDGES "SECTION M2.02.3 AS FOLLOWS: STONE FOR PIPE ENDS SHALL BE SOUND, DURABLE ROCK WHICH IS ANGULAR IN SHAPE. ROUNDED STONE, BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLABS WILL NOT BE ACCEPTABLE. EACH STONE SHALL WEIGH NOT LESS THAN 50 POUNDS NOT MORE THAN 125 POUNDS AND AT LEAST 75% OF THE VOLUME SHALL CONSIST OF STONES WEIGHING NOT LESS THAN 75 POUNDS EACH. THE REMAINDER OF THE STONE SHALL BE SO GRADED THAT WHEN PLACED WITH THE LARGER STONES THE ENTIRE MASS WILL BE COMPACT.

RIP–RAP APRON DETAIL AT F.E.S.

NOT TO SCALE | KELLY ENGINEERING GROUP, INC. ©

CONSTRUCTION:

1. DURING CONSTRUCTION, AVOID EXCESSIVELY COMPACTING SOILS AROUND THE BIORETENTION AREAS AND ACCUMULATING SILT AROUND THE DRAIN FIELD. TO MINIMIZE SEDIMENT LOADING IN THE TREATMENT AREA, DIRECT RUNOFF TO THE BIORETENTION AREA ONLY FROM AREAS THAT ARE STABILIZED; ALWAYS DIVERT CONSTRUCTION RUNOFF ELSEWHERE.

2. TO AVOID COMPACTION OF THE PARENT MATERIAL, WORK FROM THE EDGE OF THE AREA PROPOSED AS THE LOCATION OF AN EXFILTRATING BIORETENTION CELL. NEVER DIRECT RUNOFF TO THE CELL UNTIL THE CELL AND THE CONTRIBUTING DRAINAGE AREAS ARE FULLY STABILIZED.

3. PLACE PLANTING SOILS IN 1–FOOT TO 2–FOOT LIFTS AND COMPACT WITH MINIMAL PRESSURE UNTIL DESIRED ELEVATION IS REACHED. BIORETENTION SOIL SHALL BE PLACED AND GRADED USING LOW GROUND–CONTACT PRESSURE EQUIPMENT.

BIORETENTION SOIL MIX:

1. BIORETENTION SOIL MIX SHOULD BE A MIXTURE OF 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–INCHES. THE CLAY CONTENT SHALL NOT EXCEEDING 5%.

3. SOIL PH SHOULD BE BETWEEN 5.5–6.5.

4. SOILS SHOULD BE 1.5%–3% ORGANIC CONTENT AND A MAXIMUM 500 ppm CONCENTRATION OF SOLUBLE SALTS.

5. THE SAND COMPONENT SHOULD BE GRAVELLY SAND THAT MEETS ASTM D 422

SIEVE SIZE	PERCENT PASSING
2–INCH	100
3/4–INCH	70–100
1/4–INCH	50–80
U.S. No.40	15–40
U.S. No.200	0–3

6. THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND, OR LOAM TEXTURE.

7. THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASSDEP GUIDELINES (SEE WWW.MASS.GOV/DEP/RECYCLE/REDUCE/LEAFGUID.DOC). THE COMPOST SHALL NOT CONTAIN BIOSOLIDS.

EXFILTRATING BIORETENTION AREA DETAIL

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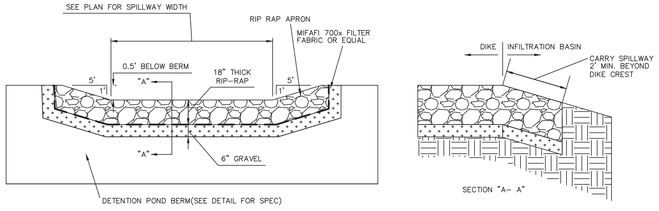

APRON TO BE COMPOSED OF A LAYER OF STONES 18" IN THICKNESS OR MORE, PLACED UPON A BED OF SAND AND GRAVEL 6" IN THICKNESS. THE STONES SHALL BE SIZED SO THAT NOT LESS THAN 60% SHALL HAVE ONE DIMENSION 12" OR MORE. THE STONES, AFTER BEING LAID, SHALL BE CAREFULLY CHINKED BY HAND TO MAKE A REASONABLY SMOOTH AND SHAPED SURFACE ALONG THE TOP OF THE DIKE AND A ROUGH SURFACE ALONG THE DOWN STREAM FACE AND TOE OF THE DIKE. STONE TO MEET M2.02.3 REQUIREMTS. RIP RAP IS TO BE USED WHERE INDICATED ON THE PLAN.

EMERGENCY SPILLWAY DETAIL

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CHKD BY BGL				
APPD BY DNK				

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1775 WASHINGTON STREET
HANOVER, MA

DETAIL SHEET

KELLY ENGINEERING GROUP
civil engineering consultants
0 Campanelli Drive, Braintree, MA 02184
Phone: 781-843-4333 www.kellyengineeringgroup.com

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

SHEET NO. 34

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	3	PIECES
INTERMEDIATE CHAMBERS	15	PIECES
END CHAMBERS	3	PIECES
HVLV FC-24 FEED CONNECTOR	2	PIECES
CULTEC NO. 410™ FILTER FABRIC	264.64	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	16.00	FEET
STONE	68.30	CU. YARDS
VOLUME OF EXCAVATION	143.89	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 1868.6 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 1130.0 cu. feet)
(STORAGE PROVIDED IN STONE: 737.6 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 0.9 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

CULTEC, Inc.
Subsurface Stormwater Management Systems
P.O. Box 280, 878 Federal Road, Brookfield, CT 06804, www.cultec.com
PH: (203) 775-4416, PH: (800) 4-CULTEC, FX: (203) 775-1462, tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

CULTEC STORMWATER SYSTEM #1
HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	4	PIECES
INTERMEDIATE CHAMBERS	20	PIECES
END CHAMBERS	4	PIECES
HVLV FC-24 FEED CONNECTOR	3	PIECES
CULTEC NO. 410™ FILTER FABRIC	330.85	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	20.83	FEET
STONE	87.62	CU. YARDS
VOLUME OF EXCAVATION	187.36	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 2454.3 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 1506.7 cu. feet)
(STORAGE PROVIDED IN STONE: 946.2 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 1.4 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

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Subsurface Stormwater Management Systems
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CULTEC STORMWATER SYSTEM 2
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	4	PIECES
INTERMEDIATE CHAMBERS	40	PIECES
END CHAMBERS	4	PIECES
HVLV FC-24 FEED CONNECTOR	3	PIECES
CULTEC NO. 410™ FILTER FABRIC	539.39	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	20.83	FEET
STONE	144.59	CU. YARDS
VOLUME OF EXCAVATION	312.26	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 4113.9 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 2551.0 cu. feet)
(STORAGE PROVIDED IN STONE: 1561.5 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 1.4 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

CULTEC, Inc.
Subsurface Stormwater Management Systems
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PH: (203) 775-4416, PH: (800) 4-CULTEC, FX: (203) 775-1462, tech@cultec.com

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CULTEC STORMWATER SYSTEM 3
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	6	PIECES
INTERMEDIATE CHAMBERS	72	PIECES
END CHAMBERS	6	PIECES
HVLV FC-24 FEED CONNECTOR	5	PIECES
CULTEC NO. 410™ FILTER FABRIC	871.02	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	30.50	FEET
STONE	241.07	CU. YARDS
VOLUME OF EXCAVATION	530.29	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 7058.8 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 4453.0 cu. feet)
(STORAGE PROVIDED IN STONE: 2603.5 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 2.3 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

CULTEC, Inc.
Subsurface Stormwater Management Systems
P.O. Box 280, 878 Federal Road, Brookfield, CT 06804, www.cultec.com
PH: (203) 775-4416, PH: (800) 4-CULTEC, FX: (203) 775-1462, tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

CULTEC STORMWATER SYSTEM - GROCER
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	6	PIECES
INTERMEDIATE CHAMBERS	24	PIECES
END CHAMBERS	6	PIECES
HVLV FC-24 FEED CONNECTOR	5	PIECES
CULTEC NO. 410™ FILTER FABRIC	405.02	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	30.50	FEET
STONE	109.85	CU. YARDS
VOLUME OF EXCAVATION	237.72	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 3135.4 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 1946.8 cu. feet)
(STORAGE PROVIDED IN STONE: 1186.3 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 2.3 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

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CULTEC STORMWATER SYSTEM 4 & 5
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	6	PIECES
INTERMEDIATE CHAMBERS	30	PIECES
END CHAMBERS	6	PIECES
HVLV FC-24 FEED CONNECTOR	5	PIECES
CULTEC NO. 410™ FILTER FABRIC	463.27	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	30.50	FEET
STONE	126.25	CU. YARDS
VOLUME OF EXCAVATION	274.29	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 3625.8 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 2260.1 cu. feet)
(STORAGE PROVIDED IN STONE: 1363.5 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 2.3 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

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CULTEC STORMWATER SYSTEM - THEATER
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	3	PIECES
INTERMEDIATE CHAMBERS	12	PIECES
END CHAMBERS	3	PIECES
HVLV FC-24 FEED CONNECTOR	2	PIECES
CULTEC NO. 410™ FILTER FABRIC	231.20	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	16.00	FEET
STONE	59.41	CU. YARDS
VOLUME OF EXCAVATION	124.70	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 1615.9 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 973.4 cu. feet)
(STORAGE PROVIDED IN STONE: 641.6 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 0.9 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

CULTEC, Inc.
Subsurface Stormwater Management Systems
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CULTEC STORMWATER SYSTEM #6
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	4	PIECES
INTERMEDIATE CHAMBERS	24	PIECES
END CHAMBERS	4	PIECES
HVLV FC-24 FEED CONNECTOR	3	PIECES
CULTEC NO. 410™ FILTER FABRIC	372.56	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	20.83	FEET
STONE	99.01	CU. YARDS
VOLUME OF EXCAVATION	212.34	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 2786.2 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 1715.6 cu. feet)
(STORAGE PROVIDED IN STONE: 1069.3 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 1.4 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

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CULTEC STORMWATER SYSTEM 7
HANOVER CROSSING

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

Recharger 330XLHD Stormwater System by CULTEC, Inc.		
STARTER CHAMBERS	12	PIECES
INTERMEDIATE CHAMBERS	252	PIECES
END CHAMBERS	12	PIECES
HVLV FC-24 FEED CONNECTOR	11	PIECES
CULTEC NO. 410™ FILTER FABRIC	2586.49	SQ. YARDS
CULTEC NO. 20L POLYETHYLENE LINER	59.50	FEET
STONE	745.00	CU. YARDS
VOLUME OF EXCAVATION	1676.61	CU. YARDS

CULTEC RECHARGER 330XLHD
LEGEND

STARTER CHAMBERS
INTERMEDIATE CHAMBERS
END CHAMBERS
HVLV FC-24 FEED CONNECTOR
CULTEC NO. 20L POLYETHYLENE LINER

CULTEC STORMWATER MANAGEMENT SYSTEM
TOTAL STORAGE PROVIDED: 22596.0 cu. feet
(STORAGE PROVIDED IN CHAMBERS: 14545.1 cu. feet)
(STORAGE PROVIDED IN STONE: 8046.0 cu. feet)
(STORAGE PROVIDED IN CONNECTORS 5.0 cu. feet)
*SYSTEM INSTALLED REQUIRING STONE AMOUNTS OF 6.0 inches BELOW CHAMBERS, 6.0 inches ABOVE AND A 12.0 INCHES BORDER SURROUNDING

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CULTEC STORMWATER SYSTEM-MACY'S FURNITURE
HANOVER CROSSING
1775 WASHINGTON STREET
HANOVER, MA

CULTEC STORMWATER SYSTEM	
PROJECT NO:	DATE:
DESIGNED BY:	DRAWN BY: STORMGENIE
SCALE: N.T.S.	SHEET NO: 1 OF 1

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THE EXTENT OF KELLY ENGINEERING GROUPS LIABILITY FOR THIS PLAN IS LIMITED TO THE EXTENT OF ITS FEE LESS THIRD PARTY COST

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SCALE NA				
DATE 05/17/19	REV	DATE	REVISION	BY
SHEET 35 of 35	HANOVER CROSSING 1775 WASHINGTON STREET HANOVER, MA			
FILE # 2016-075-DT00				
JOB # F:\P\2016-075	DETAIL SHEET			
DRAWN BY CJL				
CHKD BY BGL	KELLY ENGINEERING GROUP civil engineering consultants 0 Campanelli Drive, Braintree, MA 02184 Phone: 781-843-4333 www.kellyengineeringgroup.com			
APPD BY DNK				

COMMONWEALTH OF MASSACHUSETTS
DAVID NOEL KELLY
CIVIL
NO. 37942
REGISTERED PROFESSIONAL ENGINEER

SHEET NO.
35

KELLY ENGINEERING GROUP, INC.
0 Campanelli Drive-Braintree-MA 02184 Phone 781 843 4333

Attachment 7- Hanover Crossing Commercial Site Landscape Plans

Hanover Crossing Commercial

1775 Washington Street Hanover, Massachusetts

HANOVER
CROSSING

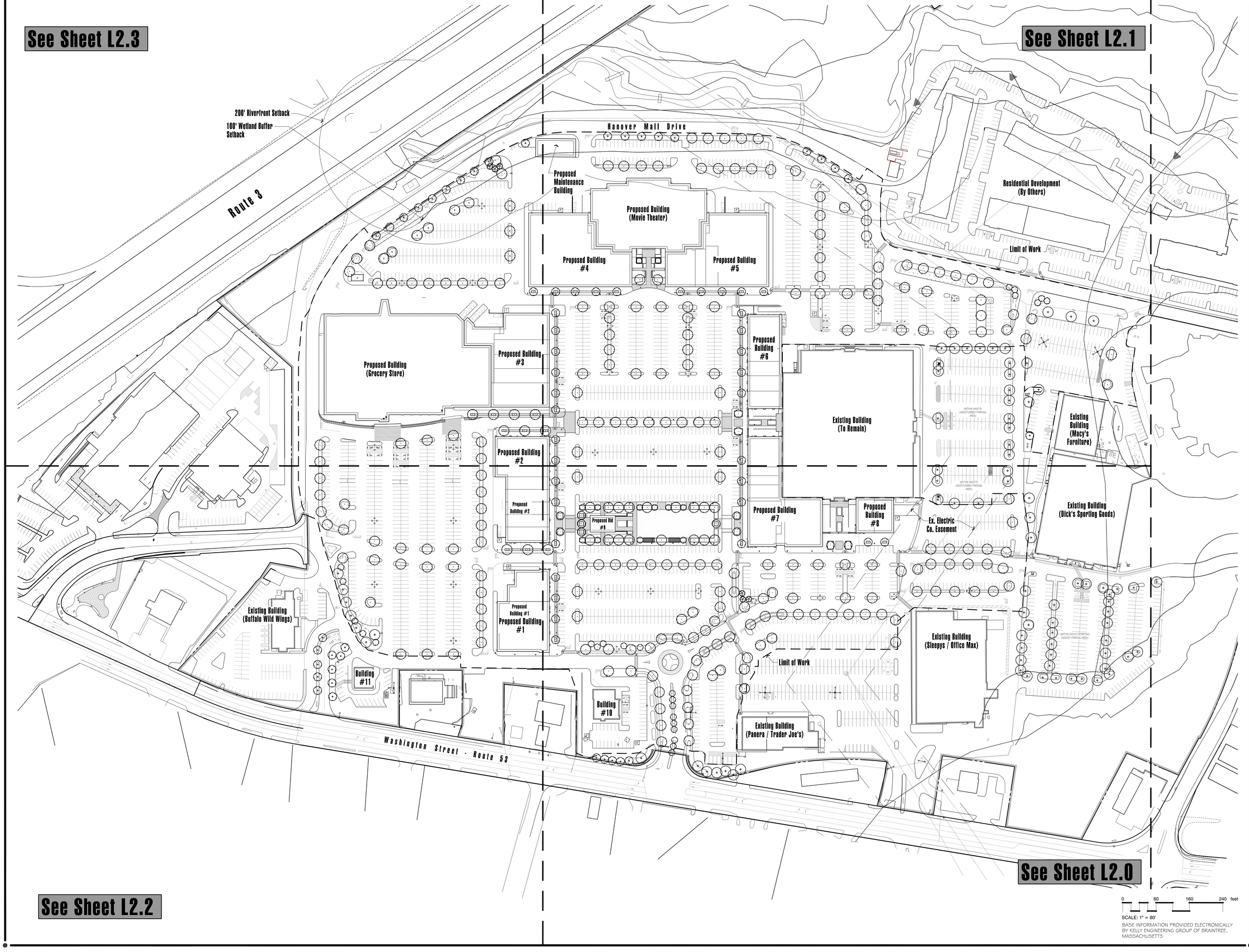
Site Landscape Plans

LIST OF DRAWINGS:		Issue Date
L1.0	Site Reference Plan	5/17/19
L2.0	South West Planting Plan	5/17/19
L2.1	South East Planting Plan	5/17/19
L2.2	North West Planting Plan	5/17/19
L2.3	North East Planting Plan	5/17/19
L3.0	Entrance Planting Plan	5/17/19
L4.0	Central Green Landscape Plan	5/17/19
L5.0	Entertainment Plaza Landscape plan	5/17/19
L6.0	Macy's Plaza Landscape Plan	5/17/19
D1	Plant Schedule, Details & Parking Calculation	5/17/19
D2	Planting Notes	5/17/19
D3	Construction Details	5/17/19

Landscape Architect:

Hawk Design, Inc.
Landscape Architecture
Land Planning

Sagamore, MA
508-833-8800
info@hawkdesigninc.com



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Date: 5/17/19

Revisions:
Num. Date Description

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. MAY
No. 918
REGISTERED LANDSCAPE ARCHITECT
5/17/19

Hanover Crossing

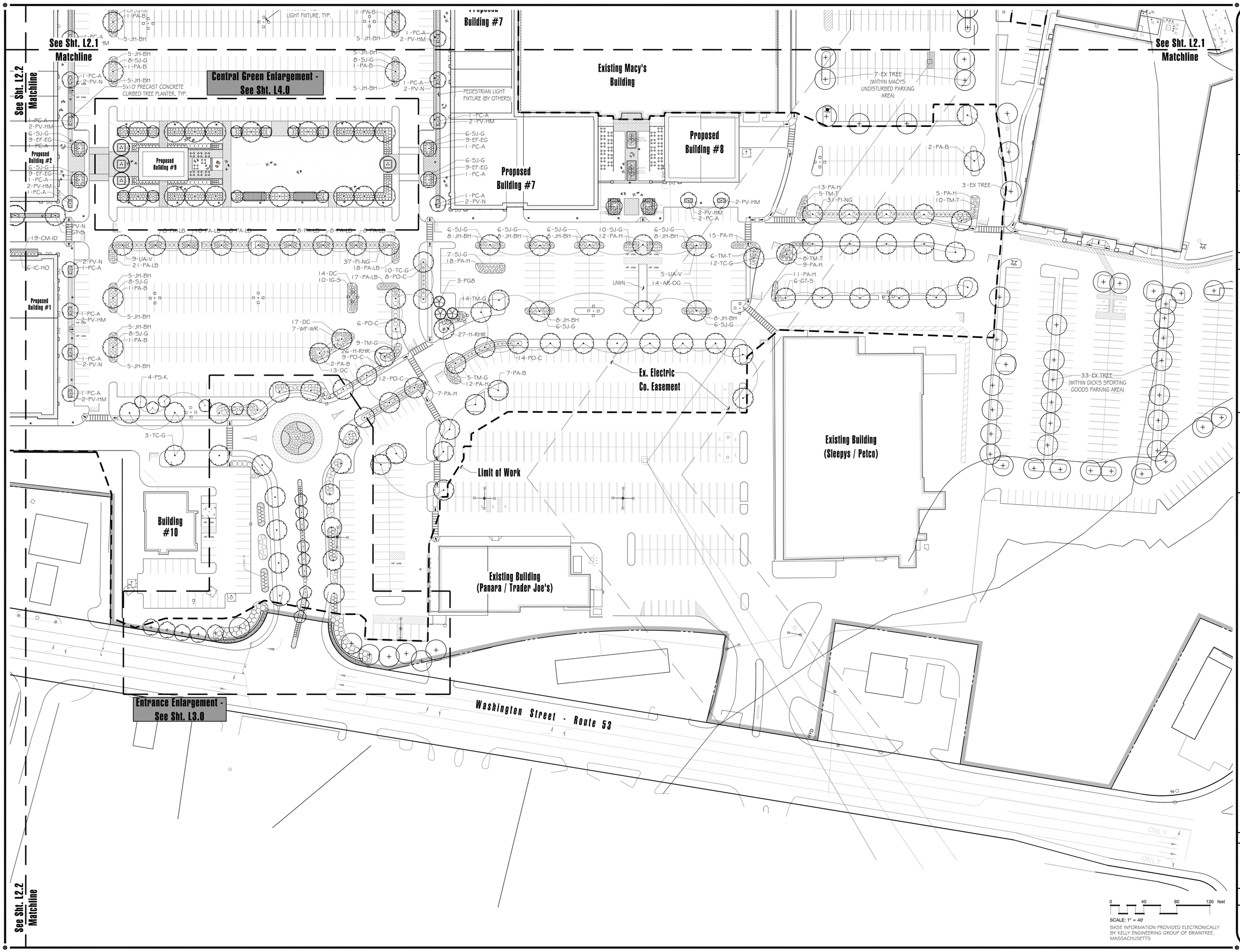
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

Site Reference Plan

Scale: 1" = 80'-0"

Sheet: **L1.0**



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Date: 5/17/19

Revisions:
Num. Date Description

MASSACHUSETTS REGISTERED LANDSCAPE ARCHITECT THOMAS E. MINER NO. 918
5/22/19

Hanover Crossing

1775 Washington Street, Hanover, Massachusetts

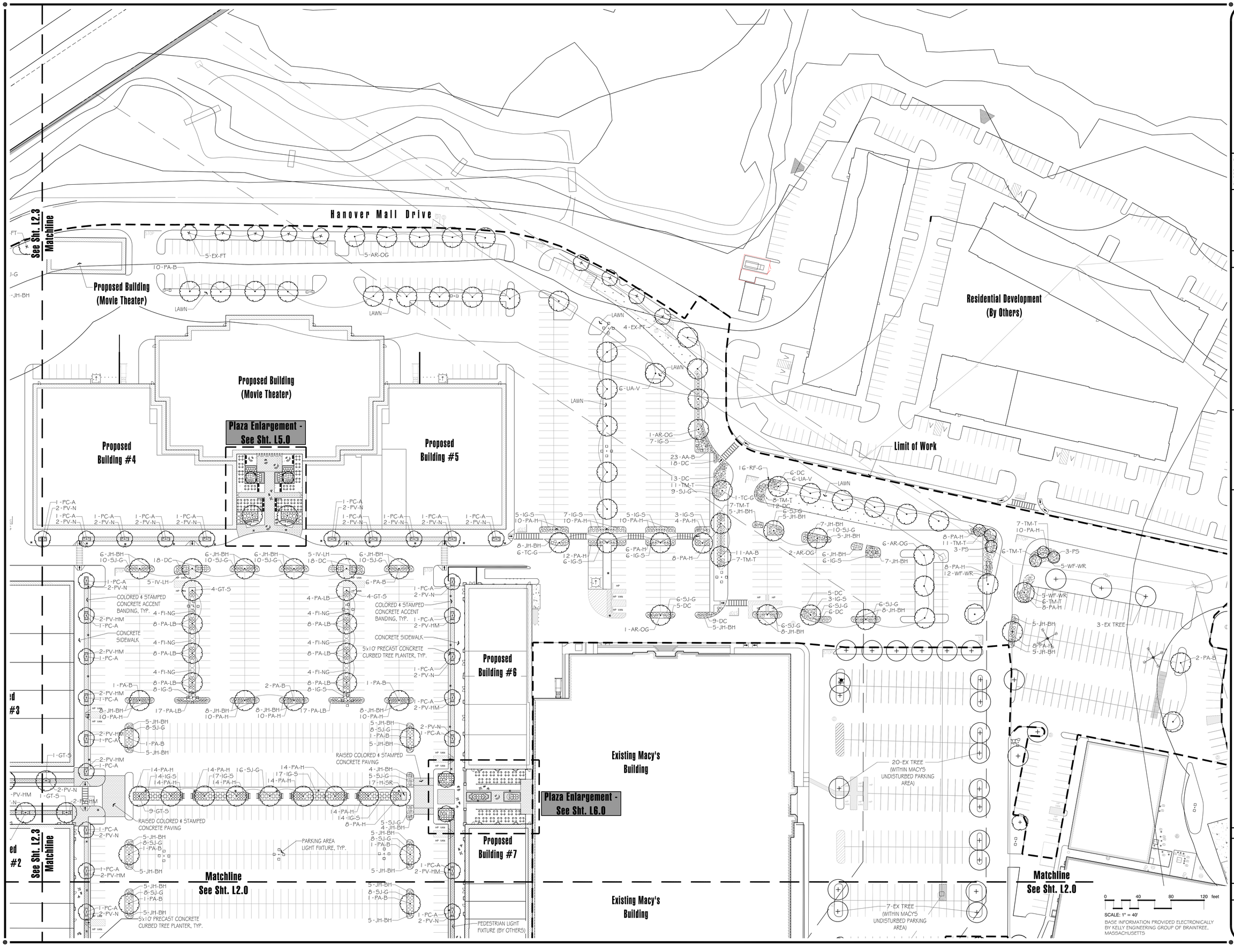
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

South West Site Planting Plan

Scale: 1"=40'-0"

Sheet: L2.0



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Date: X/XX/19

Revisions:

Num.	Date	Description

MASSACHUSETTS THOMAS E. MINER NO. 918 REGISTERED LANDSCAPE ARCHITECT
5/22/19

Hanover Crossing

1775 Washington Street, Hanover, Massachusetts

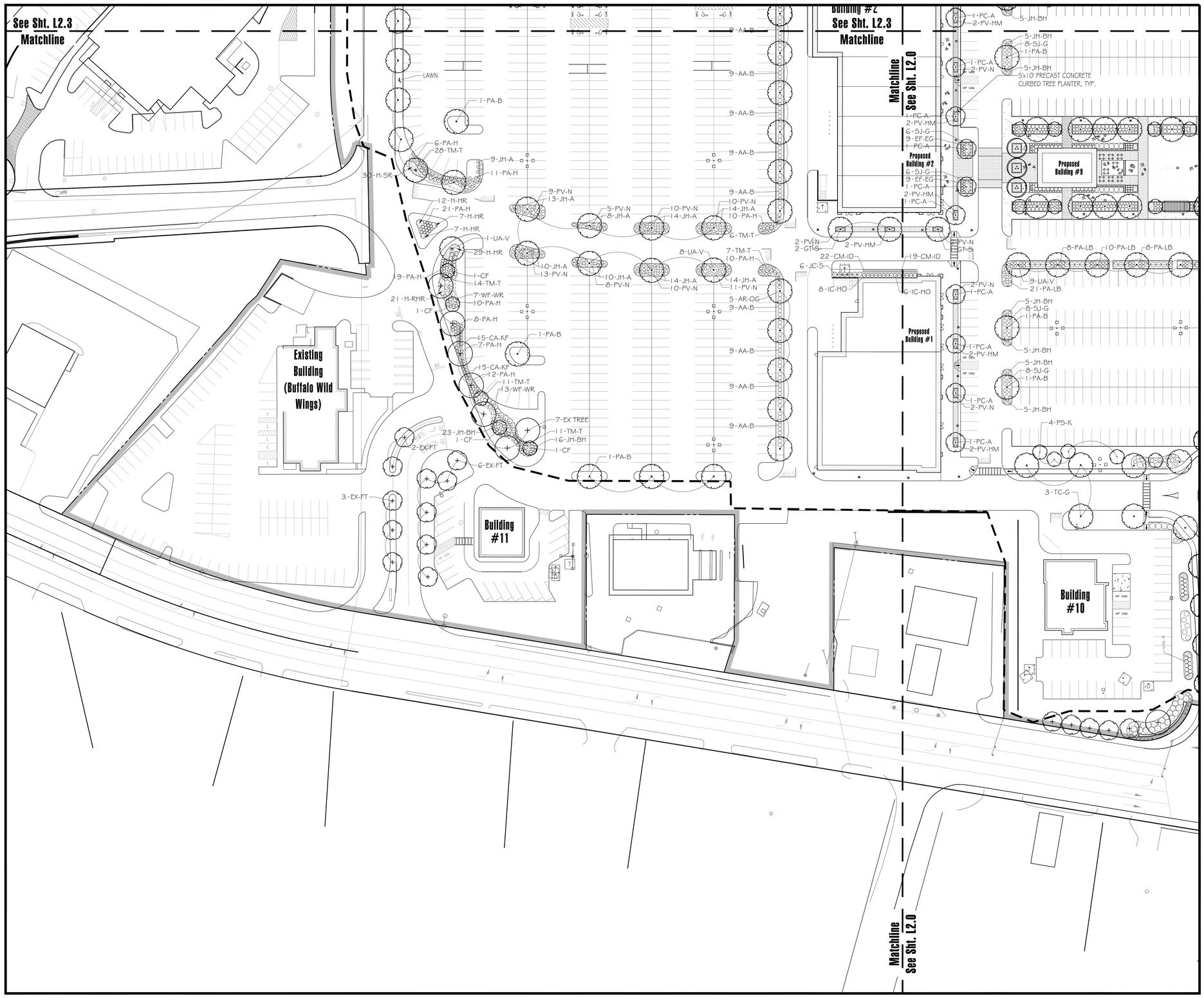
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

South East Site Planting Plan

Scale: 1"=40'-0"

Sheet: L2.1



0 40 80 120 feet

SCALE: 1" = 40'

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REGISTERED LANDSCAPE ARCHITECT
No. 918
5/22/19

Hanover Crossing

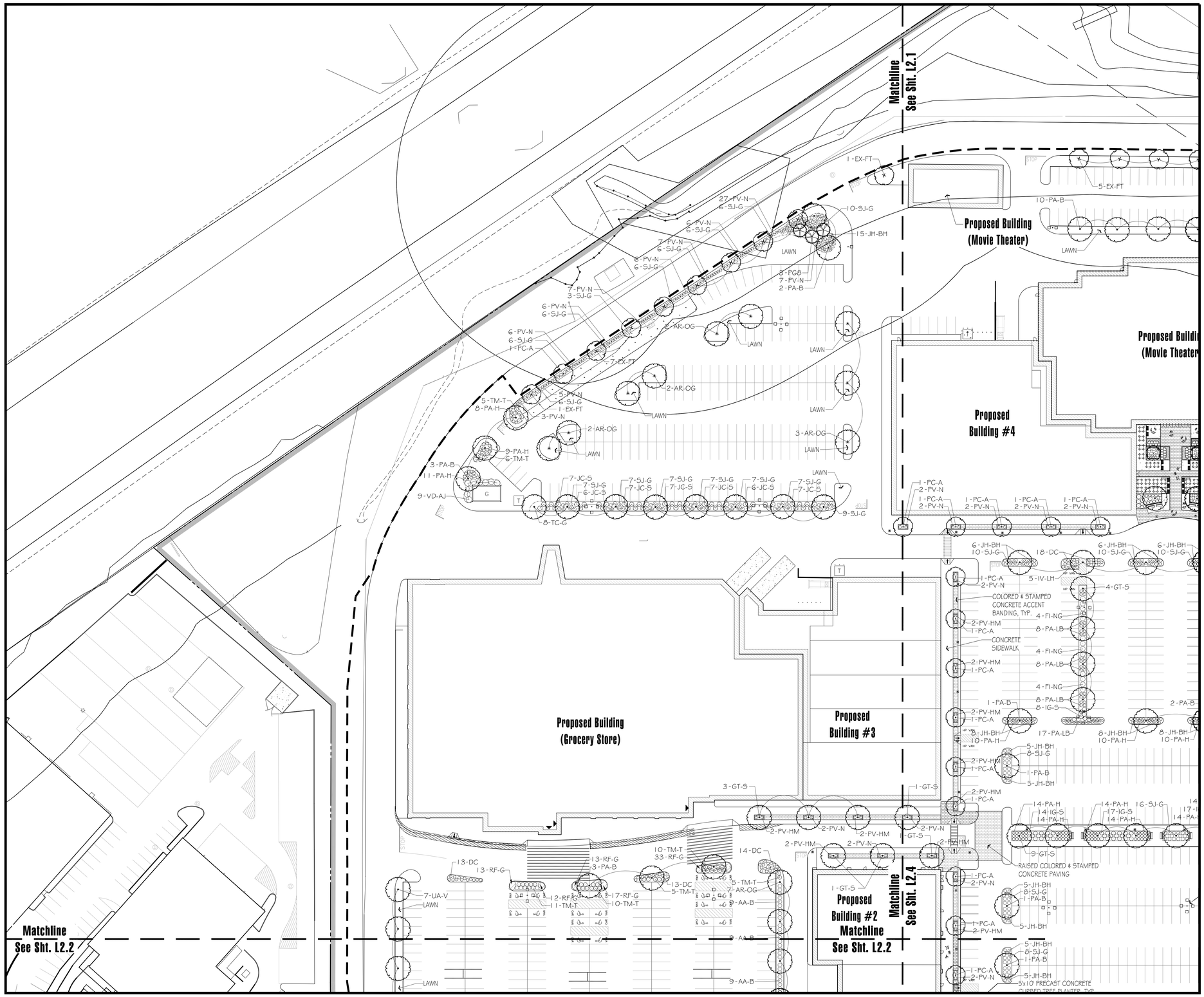
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

North West Site Planting Plan

Scale: 1" = 40'-0"

Sheet: L2.2



0 40 80 120 feet

SCALE: 1" = 40'

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Num. Date Description

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. HAWK
REGISTERED LANDSCAPE ARCHITECT
No. 918
5/22/19

Hanover Crossing

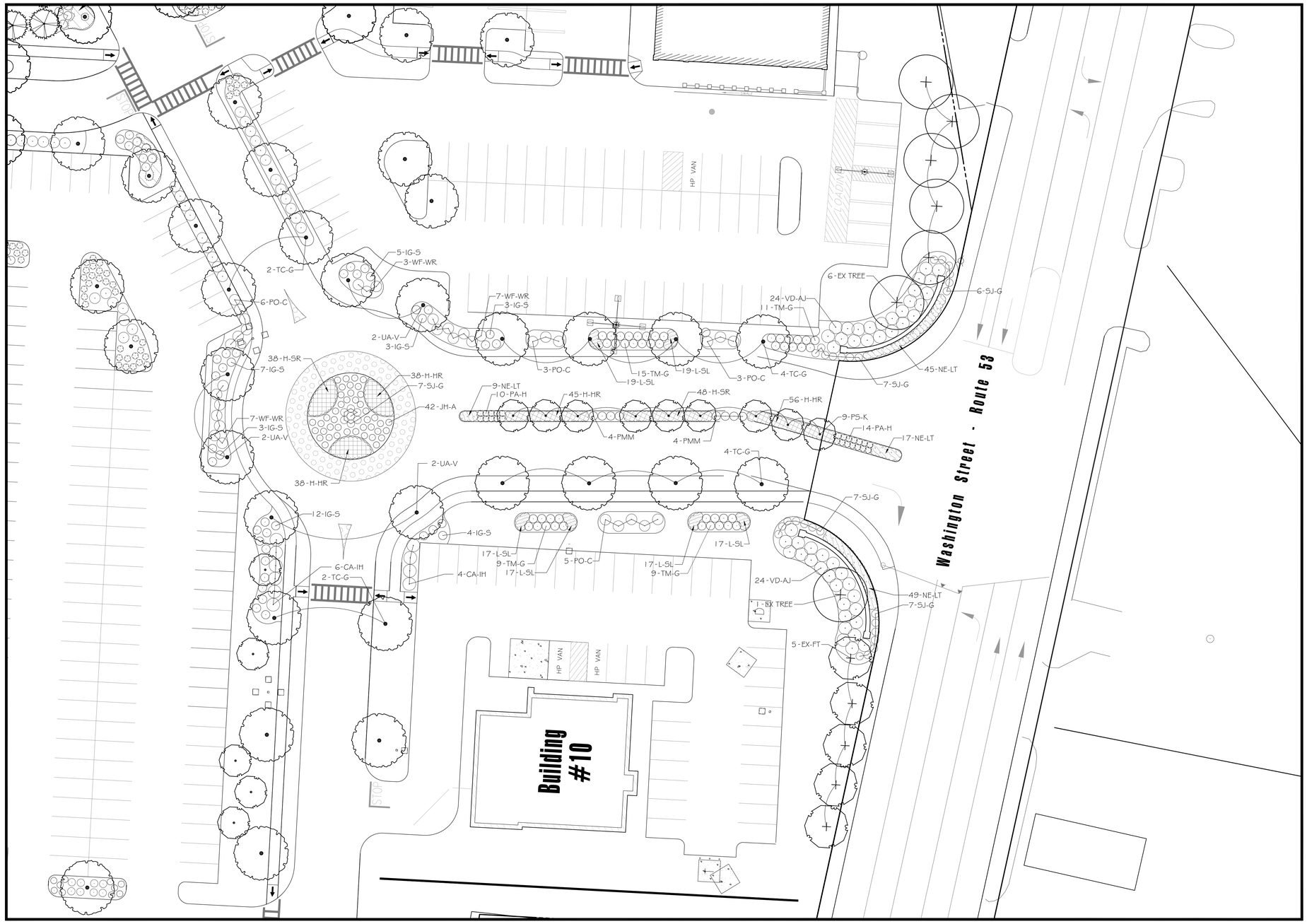
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

North East Site Planting Plan

Scale: 1" = 40'-0"

Sheet: L2.3



0 20 40 60 feet

SCALE: 1" = 20'

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Date: 5/17/19

Revisions:
Num. Date Description

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. HAWK
REGISTERED LANDSCAPE ARCHITECT
NO. 919
5/22/19

Hanover Crossing

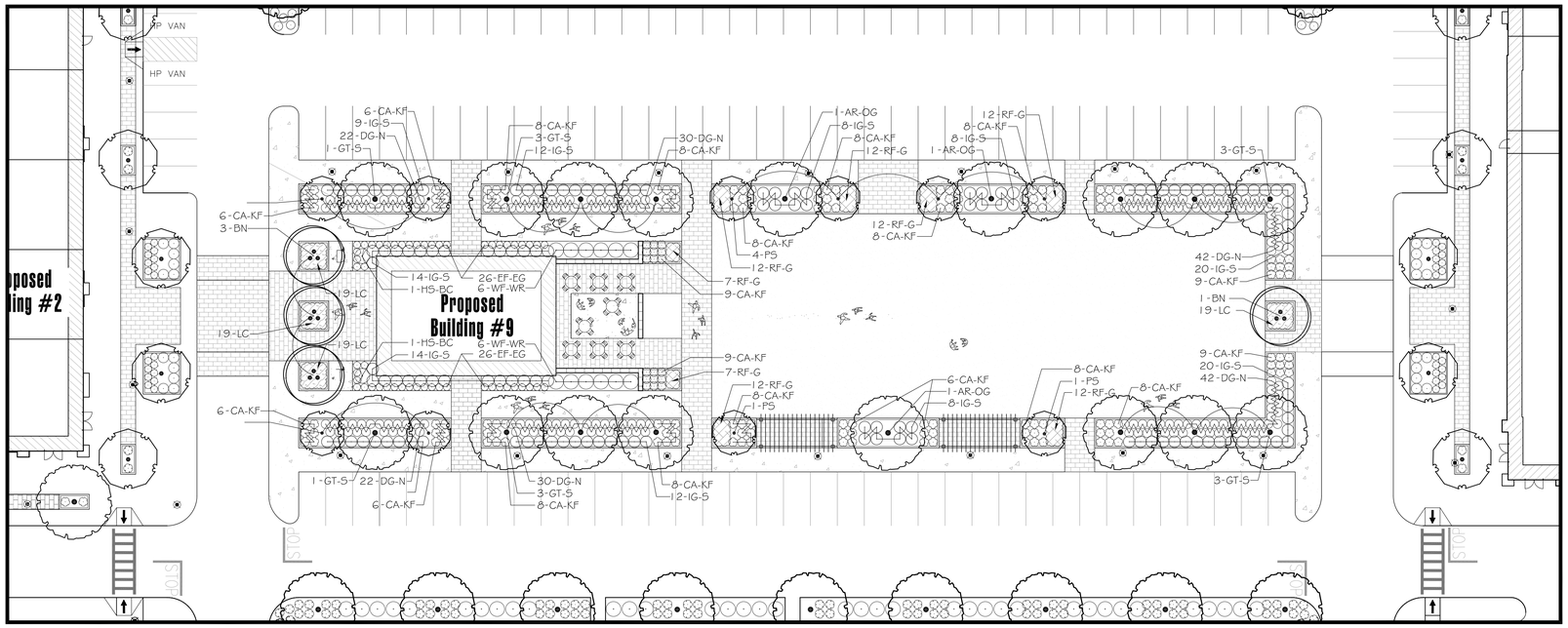
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

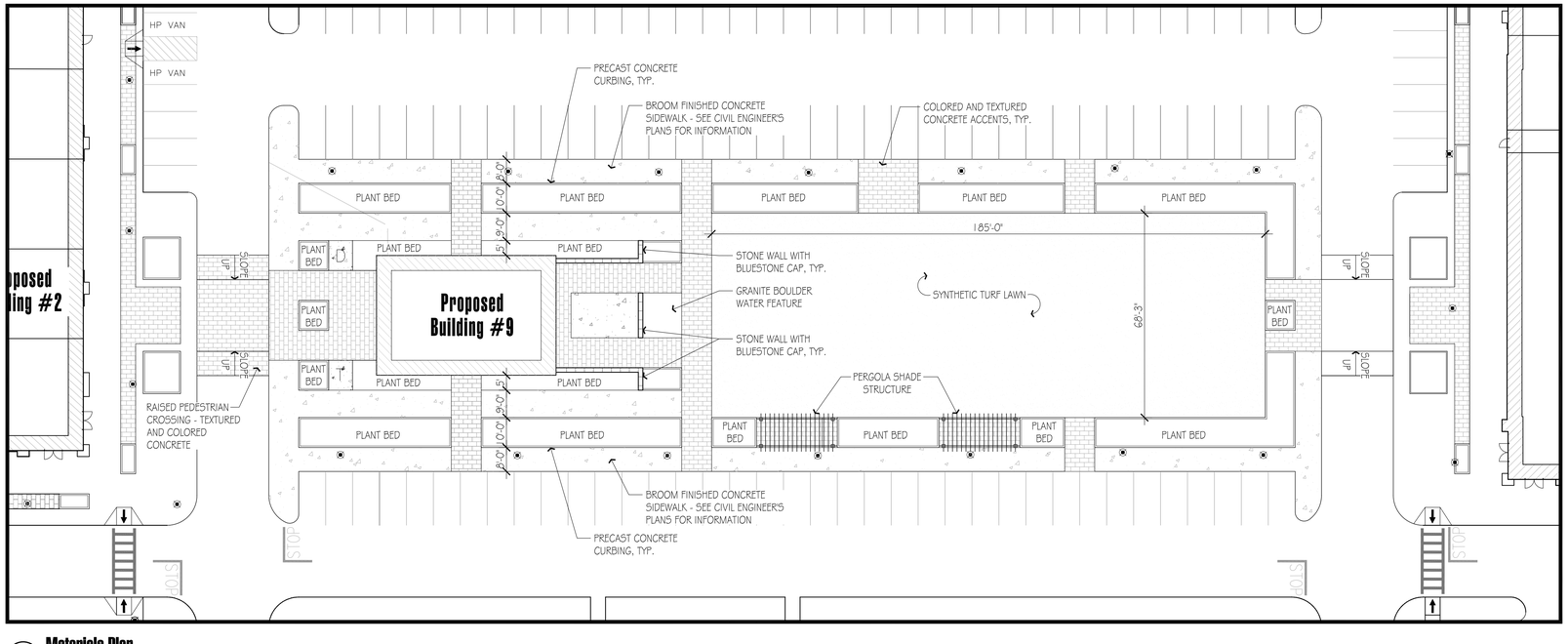
Site Entrance Planting Plans

Scale: 1" = 20'-0"

Sheet: L3.0



1 **Planting Plan**
Scale: 1"=20'-0"



2 **Materials Plan**
Scale: 1"=20'-0"

0 10 20 30 feet
SCALE: 1" = 10'
BASE INFORMATION PROVIDED ELECTRONICALLY BY KELLY ENGINEERING GROUP OF BRAINTREE, MASSACHUSETTS

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Date: 5/17/19

Revisions:
Num. Date Description

MASSACHUSETTS THOMAS E. MINER REGISTERED LANDSCAPE ARCHITECT NO. 918
5/22/19

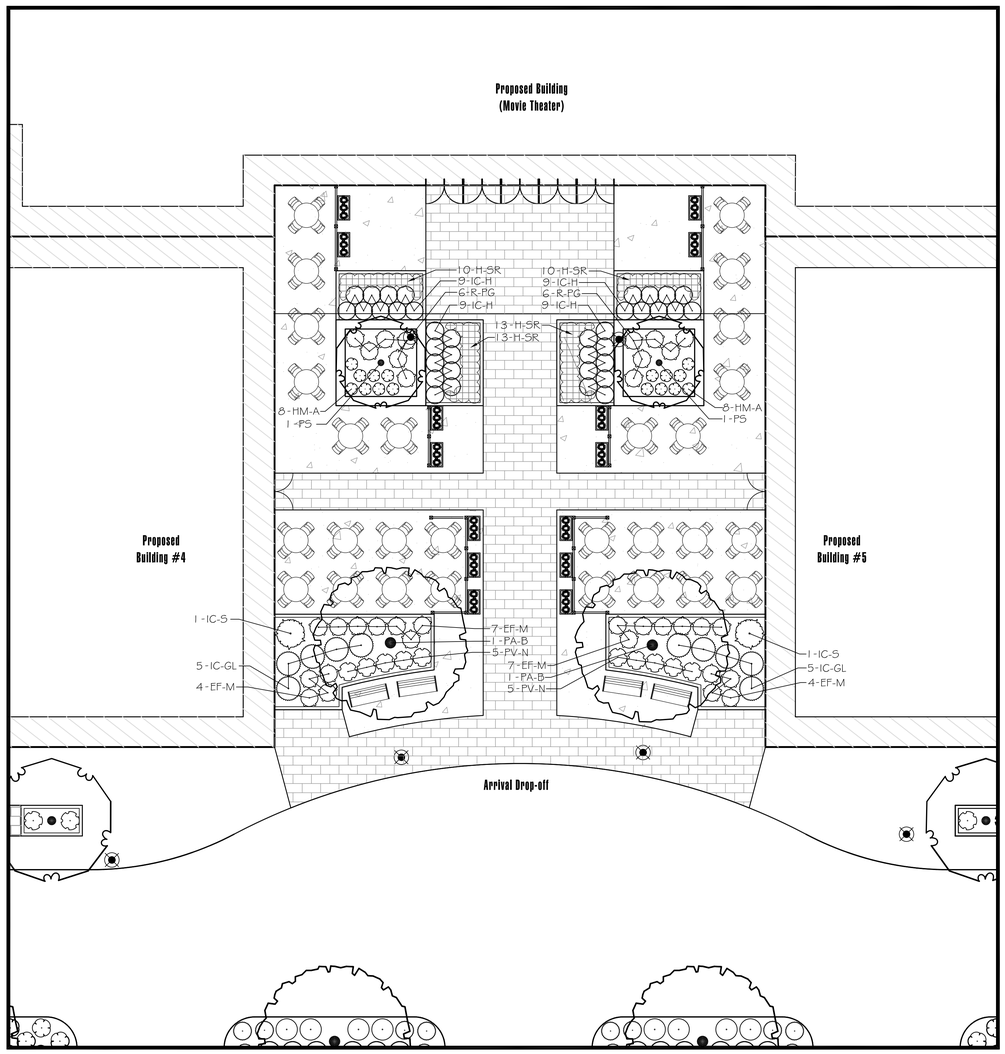
Hanover Crossing
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

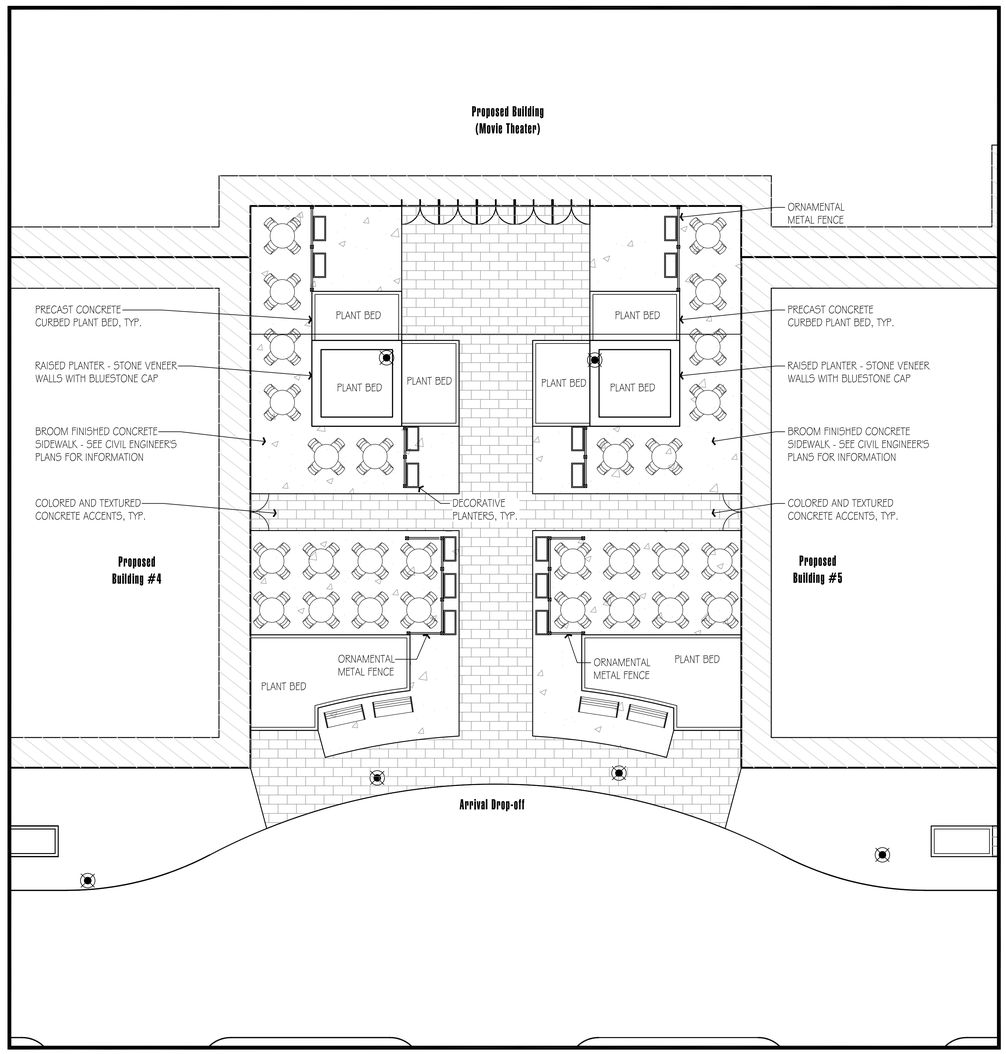
Central Green Landscape Plans

Scale: As Noted

Sheet: **L4.0**



1 **Planting Plan**
Scale: 1"=10'-0"



2 **Materials Plan**
Scale: 1"=10'-0"

0 10 20 30 feet
SCALE: 1" = 10'

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HAWK DESIGN, INC. 2019

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Date: 5/17/19

Revisions:
Num. Date Description

MASSACHUSETTS THOMAS E. MAY NO. 618 REGISTERED LANDSCAPE ARCHITECT
5/17/19

Hanover Crossing

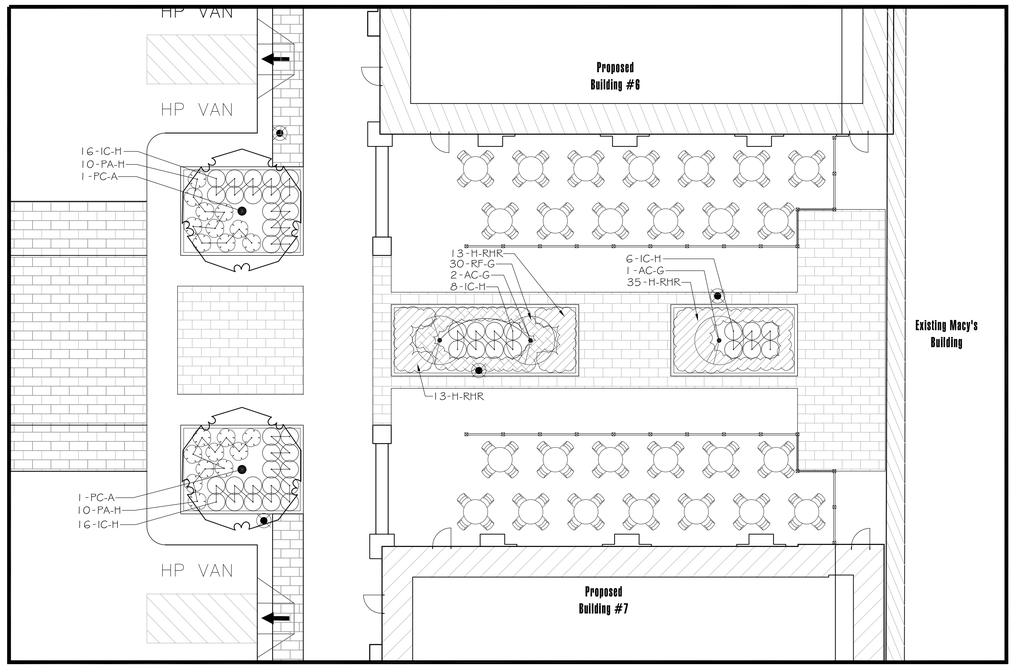
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

Entertainment Plaza Landscape Plans

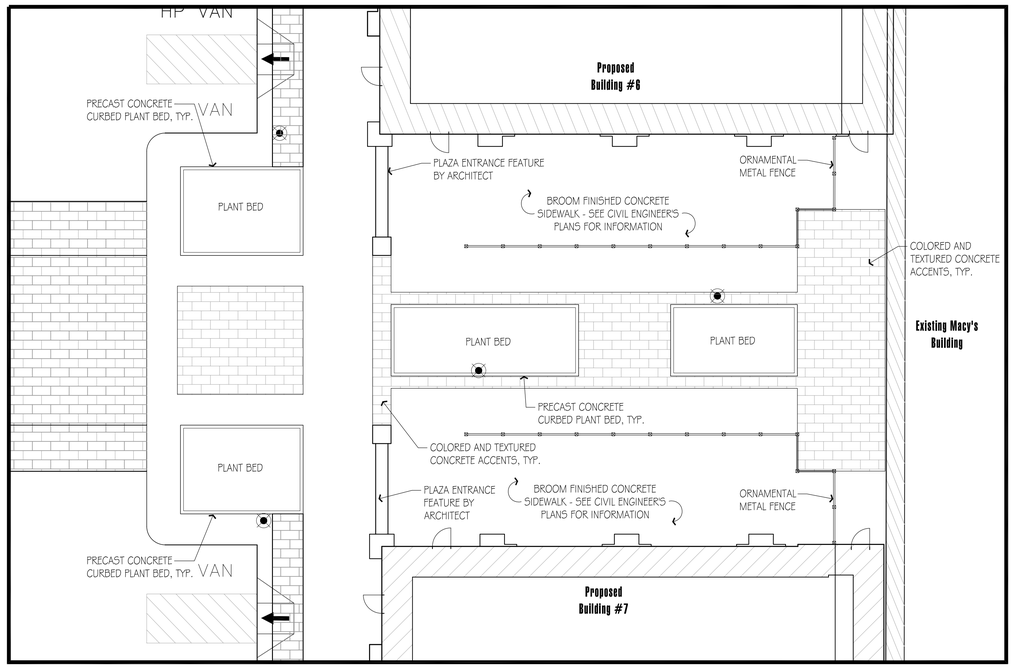
Scale: As Noted

Sheet: **L5.0**



1 North Plaza Planting Plan

Scale: 1"=10'-0"



2 North Plaza Materials Plan

Scale: 1"=10'-0"

3 West Plaza Planting Plan

Scale: 1"=10'-0"

4 West Plaza Materials Plan

Scale: 1"=10'-0"

0 10 20 30 feet

SCALE: 1" = 10'

BASE INFORMATION PROVIDED ELECTRONICALLY BY KELLY ENGINEERING GROUP OF BRAINTREE, MASSACHUSETTS

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HAWK DESIGN, INC. 2019

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Date: 5/17/19

Revisions:

Num.	Date	Description

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. MAY
No. 918
REGISTERED LANDSCAPE ARCHITECT
5/22/19

Hanover Crossing

1775 Washington Street, Hanover, Massachusetts

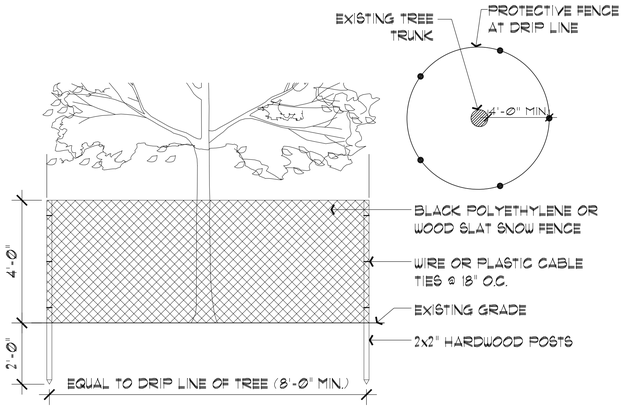
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

Macy's Plaza Landscape Plans

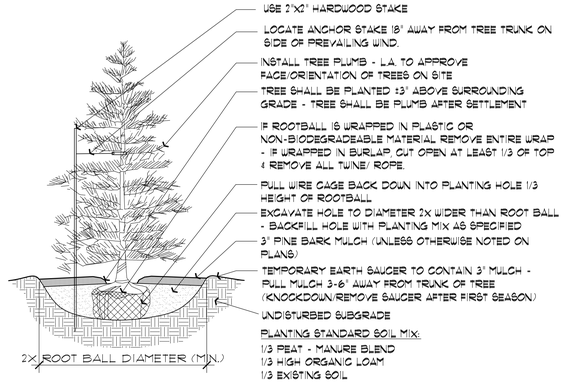
Scale: As Noted

Sheet: L6.0

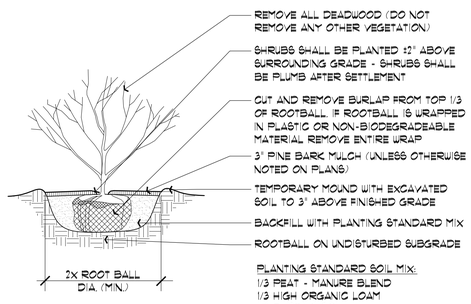


NOTES:
1. PROTECTIVE FENCE TO REMAIN UNTIL CONSTRUCTION IS COMPLETE.
2. NO TREE SHALL BE REMOVED UNLESS SPECIFICALLY TAGGED FOR REMOVAL BY THE LANDSCAPE ARCHITECT.
3. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE TREES THAT ARE TO REMAIN.
4. DO NOT NAIL BOARDS OR FENCING TO TREES DURING CONSTRUCTION.
5. ANY EXCAVATING WITHIN DRIPLINE MUST BE APPROVED BY LANDSCAPE ARCHITECT AND MUST BE HAND-DUG. CONTRACTOR SHALL NOT CUT ANY ROOTS AND/OR BRANCHES UNLESS APPROVED BY LANDSCAPE ARCHITECT.
6. ROOTS EXPOSED AND/OR DAMAGED DURING GRADING & CONSTRUCTION OPERATIONS SHALL BE CUT OFF CLEANLY INSIDE THE EXPOSED OR DAMAGED AREA AND TOPSOIL BE PLACED OVER THE ROOTS IMMEDIATELY. FEEDER ROOTS SHALL NOT BE CUT IN AN AREA INSIDE DRIP LINE OF THE TREE BRANCHES.
7. ROOTS GREATER THAN 1" DIAMETER SHALL NOT BE CUT UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT.
8. STOCKPILED MATERIALS OR UNNECESSARY VEHICULAR TRAFFIC SHALL NOT BE ALLOWED OVER ANY TREE ROOT SYSTEM.
9. INSPECT FENCE ON WEEKLY BASIS AND REPAIR DAMAGE IMMEDIATELY.

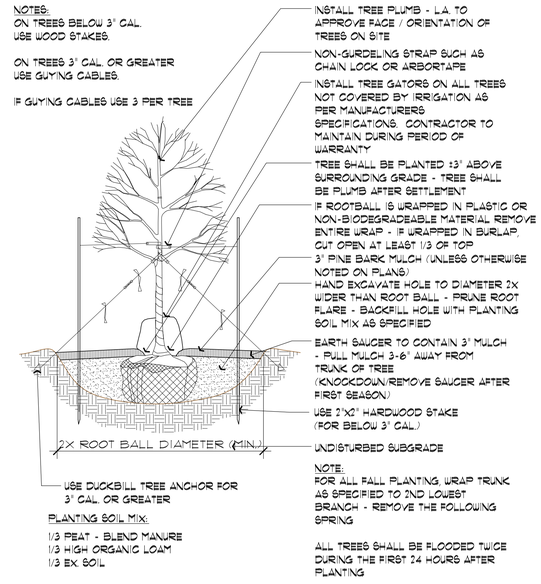
Existing Tree Protection Detail
Scale: Not to Scale



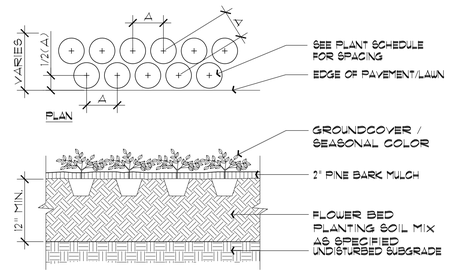
Evergreen Tree Detail
Scale: Not to Scale



Shrub Detail
Scale: Not to Scale



Shade & Flowering Tree Detail
Scale: Not to Scale



Perennial / Seasonal Color / Groundcover Detail
Scale: Not to Scale

Schedule of Topsoils:

LOCATION	DEPTH	DESCRIPTION
GENERAL PLANTING BEDS	6"	1/3 PEAT - MANURE BLEND 1/3 HIGH ORGANIC LOAM 1/3 EXISTING SOIL
FLOWER BEDS	12"	SCREENED LOAM 1/3 PEAT - MANURE BLEND LIME - PELATIZED OR GROUND (50 LB. PER 100 SF.) GROUND BONE MEAL (50 LB. PER 100 SF.) 10-10-10 ORGANIC FERTILIZER (50 LB. PER 5000 SF.)
LAWNS - SOD + SEED	6"	6" SCREENED LOAM
PITS-TREE WELLS "STANDARD MIX" FOR BACKFILL	12"	1/3 PEAT - MANURE BLEND SOIL MIX 'A' - 1/3 HIGH ORGANIC LOAM 1/3 EXISTING SOIL

PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	PLANT SIZE
AR-OG	57	Acer rubrum `October Glory`	October Glory Maple	B & B	3-3.5" CAL.	
BN	4	Betula nigra	Multi-Stem River Birch	B & B		12-14` HT.
GT-S	47	Gleditsia triacanthos `Shademaster`	Shademaster Locust	B & B	3-3.5" CAL.	
PA-B	54	Platanus acerifolia `Bloodgood`	Bloodgood London Plane Tree	B & B	3-3.5" CAL.	
TC-G	62	Tilia cordata `Greenspire`	Greenspire Littleleaf Linden	B & B	3-3.5" CAL.	
UA-V	48	Ulmus americana `Valley Forge`	American Elm	B & B	3-3.5" CAL.	
EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	PLANT SIZE
PG8	6	Picea glauca	White Spruce	B & B		8-10` HT.
EXISTING TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	PLANT SIZE
EX TREE	43	Existing Shade Tree	Existing Shade Tree	Existing		
EX-FT	35	Existing Flowering Tree	Existing Flowering Tree	Existing		
FLOWERING TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	PLANT SIZE
CF	5	Cornus florida	Flowering Dogwood	B & B	3-3.5" CAL.	
PC-A	45	Pyrus calleryana `Aristocrat`	Aristocrat Flowering Pear	B & B	3-3.5" CAL.	
PS	18	Prunus sargentii	Sargent Cherry	B & B	3-3.5" CAL.	
PS-K	14	Prunus serrulata `Kwanzan`	Kwanzan Cherry	B & B	3-3.5" CAL.	
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
AA-B	124	Aronia arbutifolia `Brilliantissima`	Brilliant Red Chokeberry	B & B		2-2.5` HT.
AC-G	6	Amelanchier canadensis `Glennform`	Rainbow Pillar Serviceberry	B & B		7-8` HT.
CA-IH	10	Cornus alba `Ivory Halo`	Variegated Redtwig Dogwood	B & B		2-2.5` HT.
DG-N	188	Deutzia gracilis `Nikko`	Slender Deutzia	Cont.		15-18" HT.
EF-EG	88	Euonymus fortunei `Emerald Gaiety`	Emerald Gaiety Euonymus	Cont.		18-24" HT.
EF-M	22	Euonymus fortunei `Moonshadow`	Moonshadow Euonymus	Cont.		18-24" HT.
FI-NG	94	Forsythia x intermedia `New Hampshire Gold`	New Hampshire Gold Forsythia	B & B		3-3.5` HT.
HS-BC	2	Hibiscus syriacus `Blue Chiffon`	Rose-of-Sharon	B & B		4-5` HT.
IC-GL	10	Ilex crenata `Green Lustre`	Green Luster Japanese Holly	B & B		2-2.5` HT.
IC-H	126	Ilex crenata `Helleri`	Heller Japanese Holly	Cont.		18-24" HT.
IC-HO	14	Ilex crenata `Hoogendoorn`	Hoogendoorn Japanese Holly	B & B		2-2.5` HT.
IC-S	2	Ilex crenata `Steeds`	Steeds Japanese Holly	B & B		4-4.5` HT
IG-S	307	Ilex glabra `Shamrock`	Shamrock Inkberry	B & B		2-2.5` HT.
IV-LH	10	Itea virginica `Little Henry`	Little Henry Sweetspire	Cont.		15-18" HT.
JC-S	52	Juniperus chinensis `Spartan`	Spartan Juniper	B & B		5-6` HT.
JH-A	149	Juniperus horizontalis `Andorra`	Andorra Juniper	Cont.		18-24" SPD.
JH-BH	320	Juniperus horizontalis `Bar Harbor`	Bar Harbor Creeping Juniper	Cont.		18-24" SPD.
PMM	8	Pinus mugo mugo	Mugho Pine	B & B		2-2.5` HT.
PO-C	66	Physocarpus opulifolius `Coppertina`	Coppertina Ninebark	B & B		3-3.5` HT.
R-PG	12	Rhododendron `Purple Gem`	Purple Gem Rhododendron	Cont.		18-24" HT.
SJ-G	397	Spiraea japonica `Goldflame`	Goldflame Spirea	Cont.		18-24" HT.
TM-G	72	Taxus x media `Greenwave`	Greenwave Spreading Yew	B & B		2-2.5` HT.
TM-T	220	Taxus x media `Tauntoni`	Tauton Yew	B & B		2-2.5` HT.
VD-AJ	57	Viburnum dentatum `Autumn Jazz`	Autumn Jazz Viburnum	B & B		3-3.5` HT.
WF-WR	78	Weigela florida `Wine & Roses`	Wine & Roses Weigela	B & B		3-3.5` HT.
GRASSES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
CA-KF	198	Calamagrostis x acutiflora `Karl Foerster`	Feather Reed Grass	2 GAL		
CM-ID	41	Carex morrowii `Ice Dance`	Ice Dance Japanese Sedge	1 gal		
DC	199	Deschampsia cespitosa	Tufted Hair Grass	2 GAL		
HM-A	16	Hakonechloa macra `Aureola`	Golden Variegated Hakonechloa	1 GAL		
PA-H	556	Pennisetum alopecuroides `Hameln`	Hameln Dwarf Fountain Grass	2 gal		
PA-LB	200	Pennisetum alopecuroides `Little Bunny`	Little Bunny Fountaln Grass	1 gal		
PV-HM	38	Panicum virgatum `Heavy Metal`	Heavy Metal Switch Grass	3 GAL		
PV-N	220	Panicum virgatum `Northwind`	Northwind Switch Grass	3 GAL		
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT		
L-SL	106	Leucanthemum x `Snow Lady`	Dwarf Shasta Daisy	1 GAL.		
LC	76	Liriope spicata	Creeping Lily Turf	2 GAL.		
PERENNIALS / GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT		
H-HR	232	Hemerocallis x `Happy Returns`	Happy Returns Daylily	1 GAL.		
H-RHR	170	Hemerocallis x `Red Hot Returns`	Red Hot Returns Daylily	1 GAL.		
H-SR	179	Hemerocallis x `Stephanie Returns`	Stephanie Returns Daylily	1 GAL.		
NE-LT	120	Nepeta x `Little Trudy`	Catmint	1 GAL.		
RF-G	263	Rudbeckia fulgida `Goldsturm`	Black-eyed Susan	1 GAL.		

Town of Hanover Parking Area Tree Requirements:

TOWN OF HANOVER ZONING BYLAW SECTION 9.2.10:
"PARKING AREAS CONTAINING TEN (10) OR MORE PARKING SPACES SHALL HAVE A MINIMUM OF ONE (1) TREE PER EIGHT (8) (OR FRACTIONS OF EIGHT) PARKING SPACES AND SUCH TREES SHALL BE LOCATED WITHIN THE PAVED PARKING AREA."

PARKING AREA TREE REQUIREMENT TABLE:

PROPOSED PARKING SPACES WITHIN HANOVER CROSSING:	3,250
REQUIRED TREE QUANTITY WITHIN PARKING AREA:	406
PROPOSED AND EXISTING TREES WITHIN HANOVER CROSSING: (PROPOSED TREES INCLUDE SHADE AND FLOWERING TREES)	431

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Date: 5/17/19

Revisions:
Num. Date Description

COMMONWEALTH OF MASSACHUSETTS THOMAS E. HAWK REGISTERED LANDSCAPE ARCHITECT NO. 918 5/17/19

Hanover Crossing
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

Plant Schedule Details & Parking Calculations

Scale: As Noted

Sheet: **D1**

General Landscape Notes:

1.) CONTRACTOR REQUIREMENTS:
A) ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND REGULATIONS, FROM ALL FEDERAL, STATE AND LOCAL AUTHORITIES.

B) THE CONTRACTOR SHALL ARRANGE FOR AND OBTAIN ALL PERMITS AND LICENSES REQUIRED FOR THE COMPLETE WORK SPECIFIED HEREIN AND SHOWN ON ALL THE DRAWINGS. THE CONTRACTOR SHALL PAY FOR ANY FEES NOT WAIVED.

1.2) UTILITIES:
A) LANDSCAPE CONTRACTOR IS REQUIRED TO CONTACT THE RELEVANT UTILITY COMPANIES PRIOR TO DOING ANY EXCAVATION ON THE SITE. IF ANY WORK IS TO BE DONE AROUND UNDERGROUND UTILITIES, THE APPROPRIATE AUTHORITY OF THAT UTILITY MUST BE NOTIFIED OF THE IMPENDING WORK.

B) UTILITIES SHALL BE LOCATED AND MARKED PRIOR TO ANY INSTALLATION. ADJUSTMENTS MAY BE NECESSARY IN THE FIELD TO ACCOMMODATE UTILITY LOCATIONS. REPORT ANY CONFLICTS TO THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

C) THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES DONE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF SATISFACTORY REPAIR OF ALL DAMAGE IN KIND RESULTING FROM THEIR FAILURE TO COMPLY.

1.3) PROTECTION OF EXISTING WORK: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK IN A MANNER THAT PROTECTS WORK COMPLETED BY OTHERS, SUCH AS CURBS, UTILITIES, STORM DRAINAGE, FENCES, DRIVEWAY APRONS, DRIVES, VEGETATION, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF SATISFACTORY REPAIR OF ALL DAMAGE IN KIND RESULTING FROM THEIR FAILURE TO COMPLY.

1.4) QUANTITIES: A COMPLETE LIST OF PLANTS INCLUDING A SCHEDULE OF QUANTITIES, SIZES, TYPES, AND NAMES IS INCLUDED IN THIS SET OF DRAWINGS. IN THE EVENT OF DISCREPANCIES BETWEEN QUANTITIES OF PLANT IN THE PLANT LIST AND THE QUANTITIES SHOWN ON THE DRAWINGS, THE PLAN SHALL GOVERN. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OF UNLABELED PLANTS IN PLAN FOR CLARIFICATION. THE LANDSCAPE ARCHITECT SHALL BE ALERTED BY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO FINAL BID NEGOTIATION.

1.5) APPLICABLE PLANT MATERIALS STANDARDS: ALL PLANT MATERIALS ARE TO COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN. PLANTING METHODS WILL BE IN ACCORDANCE WITH SITE-SPECIFIC REQUIREMENTS.

1.6) PLANT HARDINESS: ALL TREES AND SHRUBS SHALL BE NURSERY GROWN WITHIN A USDA PLANT HARDINESS ZONE WHICH IS THE SAME AS, OR COLDER THAN, THE ZONE IN WHICH THE PROJECT IS LOCATED.

1.7) PLANTING SEASONS: PLANTING SHALL ONLY OCCUR DURING SPECIFIED SEASONS. SPRING SEASON SHALL BE FROM MARCH 1 TO JUNE 15. FALL PLANTING SEASON SHALL BE FROM SEPTEMBER 15 THROUGH NOVEMBER 15. NO PLANTING SHALL OCCUR WHEN THE GROUND IS FROZEN.

1.8) PLANT SUBSTITUTIONS: NO SUBSTITUTIONS OR PRODUCTS, PLANT TYPES OR SIZES SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT. REQUESTS FOR SUBSTITUTION SHALL BE IN WRITING AND SHALL STATE THE REASON FOR THE SUBSTITUTION REQUEST, THE SUGGESTED ALTERNATIVE AND THE CHANGES IN COST. REQUESTS FOR SUBSTITUTION IN PLANT MATERIALS SHALL STATE THE NAMES OF NURSERIES THAT HAVE BEEN UNABLE TO SUPPLY THE ORIGINALLY SPECIFIED MATERIAL.

1.9) THE LANDSCAPE ARCHITECT SHALL RESERVE THE RIGHT TO INSPECT ALL PLANT MATERIALS AT THE NURSERY, UPON SITE DELIVERY AND DURING INSTALLATION TO INSURE SPECIFICATIONS AND PROCEDURES ARE ADHERED TO.

1.10) MINIMUM SIZES: ALL PLANTS 3' OR GREATER IN HEIGHT OR SPREAD SHALL BE BALLED AND BURLAPPED. SIZES SPECIFIED IN THE PLANT LIST ARE MINIMUMS ON WHICH THE PLANTS ARE TO BE JUDGED.

1.11) DEAD PLANTS: DEAD PLANTS ARE TO BE REMOVED FROM THE SITE IMMEDIATELY, AND REPLACED WITH THE SAME PLANT & SIZE REGARDLESS OF SEASON, WEEKLY FROM THE JOB BY THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN AN UPDATED COMPREHENSIVE LIST OF ALL DEAD MATERIALS REMOVED AND PRESENT A COPY OF THE LIST TO THE OWNER AND LANDSCAPE ARCHITECT AT THE END OF EVERY MONTH DURING THE CONTRACT PERIOD.

1.12) PLANT MATERIAL REMOVAL: NO EXISTING TREES SHALL BE REMOVED WITHOUT THE WRITTEN AUTHORIZATION FROM THE LANDSCAPE ARCHITECT EXCEPT WHERE NOTED ON THE PLANS. CONTRACTORS WHO REMOVE EXISTING TREES WITHOUT WRITTEN APPROVAL WILL BE REQUIRED TO MAKE REMEDIES DETERMINED BY THE GOVERNING URBAN FORESTER OR EQUIVALENT AUTHORITY. NO GRUBBING SHALL OCCUR WITHIN EXISTING TREE AREAS UNLESS SPECIFICALLY NOTED ON THE PLANS.

1.13) ALL DISTURBED AREAS NOT TO RECEIVE PLANT MATERIALS ARE TO BE LOAMED AND SEEDED AND BLENDED INTO EXISTING GRADE AND CONDITIONS. SEE SECTION 4.0.

1.14) LEDGE BOULDERS: IF DURING SITE EXCAVATION, LEDGE BOULDERS ARE AVAILABLE, THESE ARE TO BE STOCKPILED FOR USE IN EARTH BERMS IF APPLICABLE WITH HAWK DESIGN, INC. PRIOR TO INSTALLATION. THIS ITEM WILL ONLY APPLY IF SO SPECIFIED ON DRAWINGS. BOULDERS SIZES TO BE STOCKPILED WILL RANGE FROM TWO TO FIVE FEET IN DIAMETER. SEE APPROPRIATE DETAIL FOR INSTALLATION COORDINATION.

1.15) SLEEVES: LANDSCAPE OR SITE CONTRACTOR SHALL PLACE INDIVIDUAL SLEEVES FOR LIGHTING AND IRRIGATION UNDER ANY PROPOSED WALKWAY OR VEHICULAR ROADWAY PRIOR TO INSTALLATION. COORDINATE SLEEVE LOCATIONS WITH IRRIGATION AND LIGHTING CONTRACTORS PRIOR TO INSTALLATION.

1.16) DO NOT CLOSE OR OBSTRUCT ANY STREET, SIDEWALK, ALLEY OR PASSAGEWAY WITHOUT PRIOR NOTIFICATION AND PERMISSION. CONDUCT OPERATIONS AS TO INTERFERE AS LITTLE AS POSSIBLE WITH THE USE ORDINARILY MADE OF ROADS, DRIVEWAYS, ALLEYS, SIDEWALKS OR OTHER FACILITIES NEAR ENOUGH TO THE WORK TO BE EFFECTED THEREBY.

Planting Materials:

2.1 PLANTING MATERIAL ITEMS IN SECTION 2.0 ARE TO BE INCORPORATED DURING PLANT INSTALLATION UNLESS OTHERWISE DEEMED UNNECESSARY IN ACCORDANCE WITH SOIL TEST RECOMMENDATIONS. SEE SECTION 3.1.

MULCH - MULCH WILL BE DOUBLE-SHREDDED PINE BARK MULCH.
- TREES AND SHRUBS SHALL RECEIVE AN EVEN 3" MULCH LAYER.
- GROUNDCOVERS, PERENNIALS AND ANNUALS SHALL RECEIVE AN EVEN 2" MULCH LAYER.

MANURE- TO BE WELL ROTTED, ODORLESS, UNLEACHED COW MANURE, CONTAINING NOT MORE THAN 5% BEDDED MATERIALS SUCH AS STRAW, WOOD CHIPS OR SHAVINGS, AGED NOT LESS THAN TWO YEARS OLD.

HERBICIDE- A PRE-EMERGENCE WEED KILLER IS TO BE USED ON ALL LAWN AND PLANTING AREAS PRIOR TO INSTALLATION AS PER MANUFACTURER'S SPECIFICATIONS. *HERBICIDES ARE NOT TO BE APPLIED IN RESTRICTED CONSERVATION AREAS.

FERTILIZER- ALL TREES AND SHRUBS TO HAVE SLOW RELEASE PACKET OR PELLET PLACED INTO THE PLANT PIT WITH A MINIMUM ANALYSIS OF 10-10-10, ALL GROUNDCOVERS, PERENNIALS AND ANNUALS ARE TO RECIEVE A BROADCAST APPLICATION OF A 14-14-14 FERTILIZER AT 3 LB PER 100 SQ. FT. APPLY AS PER MANUFACTURER'S INSTRUCTIONS. *FERTILIZERS ARE NOT TO BE APPLIED IN RESTRICTED CONSERVATION AREAS.

TOPSOIL- ACCEPTABLE TOPSOIL SHALL BE FERTILE, FRIABLE NATURAL LOAM, UNIFORM IN COMPOSITION, FREE OF STONES, LIMBS, PLANTS AND THEIR ROOTS, DEBRIS AND OTHER EXTRANEOUS MATTER OVER ONE INCH IN DIAMETER. THE SOIL SHALL BE CAPABLE OF SUSTAINED PLANT GROWTH AND HAVE A 5% MINIMUM ORGANIC CONTENT. IN SITUATIONS WHICH REQUIRE A CUSTOM TOPSOIL OR STRUCTURAL SOIL, THE SOIL MIXTURE SPECIFICATION WILL BE PROVIDED BY THE LANDSCAPE ARCHITECT.

SOIL AMENDMENTS: APPLY AS NECESSARY ACCORDING TO SOIL TEST RESULTS, AS PER MANUFACTURES SPECIFICATIONS.

ANTI-DESICCANT- 'WILT PRUF' NCF OR EQUAL APPLY AS PER MANUFACTURERS' SPECIFICATIONS.

Plant Installation:

3.1) SOIL TESTING: LANDSCAPE CONTRACTOR SHALL PROVIDE A CERTIFIED SOIL ANALYSIS PRIOR TO ANY PLANT INSTALLATION TO DETERMINE ANY NECESSARY AMENDMENTS TO THE EXISTING SOIL CONDITIONS FOR SEEDING AND PLANTING. THE ANALYSIS WILL ALSO BE REQUIRED FOR ESTABLISHING THE FERTILIZER PROGRAM REQUIRED. COORDINATE RESULTS AND PROVIDE WRITTEN RECOMMENDATIONS TO HAWK DESIGN, INC. 15 DAYS PRIOR TO INSTALLATION.

3.2) ALL PLANTS SHALL BE TRANSPORTED TO THE SITE IN COVERED TRUCKS. TARPAULIN COVERS SHALL BE UTILIZED TO PREVENT WIND DAMAGE OF LOAD.

3.3) DELIVER PLANT MATERIALS IMMEDIATELY PRIOR TO PLACEMENT. KEEP PLANT MATERIALS MOIST. DO NOT STORE PLANT MATERIAL ON PAVED AREAS. ROOTS OR BALLS SHALL BE PROTECTED FROM THE SUN OR DRYING WINDS, AS REQUIRED BY TEMPERATURE OR WIND CONDITIONS. APPLY ANTI-DESICCANT EMULSION TO PREVENT DRYING OUT OF PLANT MATERIALS.

3.4) CONDITIONS FOR PLANT REJECTION:
A) REJECT PLANTS WHEN BALL OF EARTH SURROUNDING ROOTS HAS BEEN CRACKED OR BROKEN PREPARATORY TO OR DURING THE PROCESS OF PLANTING.

B) WHEN BURLAP, STAVES AND ROPES REQUIRED IN CONNECTION WITH TRANSPLANTING HAVE BEEN DISPLACED PRIOR TO ACCEPTANCE.

C) WIND DAMAGED PLANT MATERIAL FROM POOR TARPAULIN COVER PROCEDURES ARE SUBJECT TO REJECTION.

3.5) ALL PLANT MATERIAL WHICH CANNOT BE PLANTED IMMEDIATELY ON DELIVERY, SHALL BE SET ON THE GROUND IN A SHADED LOCATION AND SHALL BE TEMPORARILY PROTECTED WITH SOIL OR OTHER ACCEPTABLE MATERIAL. TEMPORARY WATERING OR IRRIGATION SHALL BE INCORPORATED AND REGULARLY CONDUCTED ON PLANTINGS IN HOLD AREAS.

3.6) IN CASE OF CONFLICTS DURING CONSTRUCTION WITH UTILITIES, ROCK MATERIALS, TREE ROOTS OR OTHER OBSTRUCTIONS FOR THE EXCAVATION OF SHRUB BEDS AND TREE PITS, CONTACT LANDSCAPE ARCHITECT FOR APPROVED ALTERNATE LOCATIONS.

3.7.) SOIL PERMABILITY: TEST DRAINAGE OF PLANTING BEDS AND PITS BY FILLING WITH WATER TWICE IN SUCCESSION. CONDITIONS PERMITTING THE RETENTION OF WATER FOR MORE THAN 24 HOURS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

3.8) SOIL EXCAVATIONS:
A) EXCAVATE TREE PITS AND SHRUB BEDS TO DEPTHS REQUIRED BY PLANTING DETAILS. ALL PITS SHALL BE CIRCULAR IN OUTLINE, EXCEPT FOR WHOLE BEDS. SEE APPROPRIATE PLANTING DETAILS.

B) SOIL EXCAVATIONS FOR BALLED & BURLAP AND CONTAINER PLANTINGS MUST BE NO LESS THAN 2X ROOT BALL DIAMETER. SEE PLANTING DETAILS. IF QUESTIONABLE SUBSURFACE SOIL CONDITIONS EXIST SUCH AS POOR DRAINAGE CONDITIONS, RUBBLE OR OBSTRUCTIONS, REPORT TO THE LANDSCAPE ARCHITECT AND CONSTRUCTION MANAGER BEFORE PLANTING.

3.9) GRADING:
A) VERIFY GRADES PRIOR TO PLANTING, THE CONTRACTOR SHALL VERIFY THAT CONSTRUCTED GRADES ARE AS INDICATED ON PLANS. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IF ADJUSTMENTS TO PLANT PLACEMENT MAY BE REQUIRED DUE TO FIELD CONDITIONS AND FINAL GRADING.

B) POSITIVE DRAINAGE SHALL BE MAINTAINED AWAY FROM AND AROUND BUILDINGS (REFER TO ENGINEERS GRADING PLANS). REPORT ANY CONFLICTS TO HAWK DESIGN, INC. PRIOR TO INSTALLATION.

C) FINISH GRADE OF PLANTINGS SHALL BE EQUIVALENT TO FORMER EXISTING GRADE OF PLANT IN THE NURSERY.

3.10) BALLED AND BURLAPED (B&B) MATERIALS:
A) CUT WIRE BASKETS ONCE IN THE PLANT PIT AND PEEL WIRE BACK.

B) TAGS AND TWINE ARE TO BE REMOVED AND BURLAP IS TO BE ROLLED BACK ONE-THIRD ON ALL B&B PLANT MATERIAL. ANY SYNTHETIC BURLAP SHALL BE COMPLETELY REMOVED FROM ANY PLANT MATERIAL

Plant Installation Cont'd

3.11) CONTAINER GROWN STOCK: SHALL BE REMOVED FROM CONTAINER BY CUTTING CONTAINER AWAY TO AVOID ROOT DAMAGE TO PLANT ROOT SYSTEM. IF PLANT ROOT IS BOUND, SLICE ROOT BALLS APPROXIMATELY 2" DEEP WITH KNIFE OR SHARP SPADE.

3.12) DO NOT USE MUDDY OR FROZEN SOIL TO BACKFILL PLANTINGS.

3.13) WATERING: THOROUGHLY WATER UNTIL SOIL IS SATURATED AROUND ALL TREES AND SHRUBS AFTER PLANTING AND THROUGHOUT THE TIME PERIOD UNTIL FINAL ACCEPTANCE FROM CLIENT. DURING DRY CONDITIONS, WATER AS REQUIRED TO MAINTAIN PLANTS IN A WILT-FREE CONDITION.

3.14) PRUNING: TREES SHALL BE PRUNED TO BALANCE TOP GROWTH WITH ROOTS AND TO PRESERVE THEIR NATURAL CHARACTER AND TYPICAL GROWTH HABIT. PRUNING SHALL BE RESTRICTED IN GENERAL TO THE SECONDARY BRANCHES AND SUCKER GROWTH. ALL CUTS TO BE FLUSH WITH TRUNK. DO NOT CUT A LEADER. THE LANDSCAPE ARCHITECT WILL REJECT ALL PLANTS DISFIGURED BY POOR PRUNING PRACTICES. ALL PRUNING CUTS SHALL REMAIN UNPAINTED.

3.15) STAKING AND GUYING: ALL TREES TO BE STAKED AND GUYED WITHIN 48 HOURS OF PLANTING. METHODS AND MATERIALS FOR STAKING AND GUYING ARE ILLUSTRATED IN INDIVIDUAL PLANTING DETAILS. NEATLY FLAG ALL GUY WIRES WITH ROT RESISTANCE YELLOW TREE MARKING RIBBON.

3.16) STAKE OUT PLANT LOCATIONS: PRIOR TO PLANTING THE CONTRACTOR SHALL LAYOUT THE EXTENT OF THE PLANT BEDS AND PROPOSED LOCATIONS FOR B&B PLANTS FOR REVIEW BY THE OWNER AND LANDSCAPE ARCHITECT.

3.17) PLANTING FIELD ADJUSTMENTS:
A) THE CONTRACTOR IS TO SLIGHTLY ADJUST PLANT LOCATIONS IN THE FIELD AS NECESSARY TO BE CLEAR OF DRAINAGE SWALES AND UTILITIES.

B) LARGE GROWING PLANTS ARE NOT TO BE PLANTED IN FRONT OF WINDOWS OR UNDER BUILDING OVERHANGS. NOTIFY THE LANDSCAPE ARCHITECT OF DISCREPANCIES IN PLANTING PLAN VS. FIELD CONDITIONS.

C) SHRUBS PLANTED NEAR HVAC UNITS ARE TO BE LOCATED SO THAT SHRUBS AT MATURITY WILL MAINTAIN ONE FOOT (1') AIRSPACE BETWEEN THE UNIT AND THE PLANT. ANY PLANTING SHOWN ADJACENT TO CONDENSER UNITS SHALL BE PLANTED TO SCREEN THE UNITS. SHOULD THE CONDENSER UNITS BE INSTALLED IN LOCATIONS DIFFERENT FROM THOSE SHOWN ON THE PLAN, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE LANDSCAPE ARCHITECT AND INSTALL THE MATERIAL AROUND THE CONDENSERS AND ADJUST THE OTHER PLANTING ACCORDINGLY.

3.18) PLANT BED EDGES/LINES: GROUPS OF SHRUBS, PERENNIALS AND GROUNDCOVERS SHALL BE PLACED IN A CONTINUOUS MULCH BED WITH SMOOTH CONTINUOUS LINES. ALL MULCHED BED EDGES SHALL BE CURVILINEAR IN SHAPE, FOLLOWING THE CONTOUR OF THE PLANT MASS. TREES LOCATED WITHIN 4 FEET OF PLANT BEDS SHALL SHARE THE SAME MULCH BEDS.

3.19) A.D.A. - THE AMERICAN WITH DISABILITIES ACT STANDARDS REQUIRE THAT A 7 FOOT VERTICAL CLEARANCE BE MAINTAINED FROM TREE BRANCHES TO FINISHED GRADE WHERE PEDESTRIAN SIDEWALKS AND/OR TRAILS ARE LOCATED. THE CONTRACTOR IS TO ADJUST TREE PLANTINGS IN FIELD TO SLIGHTLY MINIMIZE BRANCH OVERHANG AND COMPLY WITH THE A.D.A. ACT.

3.20) TREE SPACING MINIMUMS: TREES SHALL BE LOCATED A MINIMUM OF 4 FEET FROM RETAINING WALLS AND WALKS WITHIN THE PROJECT. IF A CONFLICT ARISES BETWEEN ACTUAL SIZE OF AREA AND PLANS, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN TO LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR'S LIABILITY TO RELOCATE MATERIALS.

Seeding and Sodding:

4.1) SEEDING OF LAWN AREAS: GRASS SEED APPLICATION SHALL BE SPREAD AT THE RATE OF 5 LBS. PER 1,000 SQUARE FEET. SEEDING SHALL BE ACCOMPLISHED BY MEANS OF A HYDRO-SEEDING PROCESS.

4.2) WATERING OF SEEDED AREAS: 24 HOURS AFTER HYDRO SEEDING, THE CONTRACTOR SHALL WATER THE SEEDED AREA LIGHTLY AND SUFFICIENTLY TO A DEPTH OF TWO INCHES (2") 2 TIMES A DAY (BETWEEN THE HOURS OF 7 PM AND 7 AM), UNTIL THE SEEDS ARE ESTABLISHED.

4.3) SEEDED AREA PROTECTION: THE CONTRACTOR SHALL ERECT SUITABLE SIGNS AND BARRICADES NOTIFYING THE PUBLIC TO KEEP OFF THE SEEDED AREAS UNTIL WELL ESTABLISHED. ANY TRAFFIC DAMAGE AND VANDALISM THAT MAY OCCUR PRIOR TO FINAL ACCEPTANCE OF THE WORK SHALL BE REPAIRED AND RESEEDED AT THE OWNER'S EXPENSE. ANY DISTURBED OR DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE.

4.4) LAYING OF SOD: A KENTUCKY BLUEGRASS SOD MIX - BY LOCAL SOURCE AS SELECTED BY CONTRACTOR. SHALL BE FRESHLY CUT FROM THE SAME FIELD WITH 1/2 -3/4 INCHES OF SOIL. SOD SHALL BE LAID IMMEDIATELY WITH ANY STORED SOD BEING UNROLLED GRASS SIDE UP AND KEPT WATERED. LAY COURSES TIGHTLY TOGETHER WITHOUT OVERLAPPING WITH THE JOINTS STAGGERED. AFTER SODDING IS COMPLETE, ROLL LIGHTLY. THE CONTRACTOR SHALL WATER THE SODDED AREAS TO A DEPTH OF AT LEAST SIX INCHES AFTER THE SODDING PROCESS. OWNER SHALL THEN BE RESPONSIBLE FOR WATERING. THE FREQUENCY SHALL BE DETERMINED BY RAIN FALL AND WINDS WITH THE UPPER TWO OR THREE INCHES OF SOIL NOT DRYING OUT MARKEDLY.

4.5) SODDED AREA: INSPECTION AND ACCEPTANCE. FOUR WEEKS AFTER CONTRACTOR COMPLETES INSTALLATION, LANDSCAPE ARCHITECT SHALL INSPECT THE LAWN TO DETERMINE THE ACCEPTABILITY OF THE INSTALLATION. SODDED AREAS FAILING TO SHOW ADEQUATE ROOTING INTO THE SUBSOIL, OVERLAPPING, COURSE SEPARATION, UNEVENNESS OF THE SURFACE, UNEVEN COURSE COLOR AND EXCESSIVE BROADLEAF WEED CONTENT SHALL BE REPLACED. THE COST SHALL BE BORNE BY THE CONTRACTOR EXCEPT WHERE VANDALISM OR NEGLECT ON THE PART OF OTHERS NOT UNDER THE CONTRACTORS CONTROL HAS RESULTED IN DAMAGE.

4.6) FINAL APPROVAL: SEEDED AND SODDED AREAS WILL RECEIVE FINAL APPROVAL IF COVERAGE IS FULL AND CONSISTENT, FREE OF BARE SPOTS AND WEED FREE. WHEN GRASS IS CUT AT 3" HEIGHT NO SOIL SHOULD BE VISIBLE. SOD AREAS MUST HAVE RECEIVED A MINIMUM OF TWO MOWINGS. AREAS SODDED AFTER NOVEMBER 1ST WILL BE ACCEPTED THE FOLLOWING SPRING - ONE MONTH AFTER THE START OF THE GROWING SEASON, IF THE ABOVE CRITERIA HAS BEEN MET.

Maintenance:

5.1) MAINTENANCE DURING INSTALLATION: MAINTENANCE OPERATIONS SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS PLANTED AND SHALL CONTINUE AS REQUIRED UNTIL FINAL ACCEPTANCE AND THEN FOR THE GUARANTEE PERIOD. PLANTS SHALL BE KEPT IN A HEALTHY GROWING CONDITION BY WATERING, PRUNING, SPRAYING, WEEDING AND ANY OTHER NECESSARY OPERATIONS OF MAINTENANCE. PLANT SAUCERS AND BEDS SHALL BE KEPT FREE OF WEEDS. GRASS AND OTHER UNDESIRED VEGETATION. PLANTS SHALL BE INSPECTED AT LEAST ONCE PER WEEK BY THE CONTRACTOR DURING THE INSTALLATION PERIOD AND ANY NEEDED MAINTENANCE IS TO BE PERFORMED PROMPTLY.

5.2) GRASS AND WEED CONTROL: THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOWING ALL GRASS AROUND LANDSCAPE BEDS AND INDIVIDUAL TREES AND SHRUBS UNTIL FINAL ACCEPTANCE. WEED CONTROL AREAS SHALL INCLUDE ALL LANDSCAPE BEDS AND THE AREA WITHIN 2 FEET OF THE OUTER EDGE OF THE MULCH AREA OR INDIVIDUAL TREE/SHRUBS.

5.3) THE CONTRACTOR SHALL WATER, FERTILIZE, WEED, CULTIVATE, REMULCH, SPRAY TO CONTROL INSECT INFESTATION AND DISEASE AND PERFORM ANY OTHER GOOD HORTICULTURAL PRACTICE NECESSARY TO MAINTAIN THE PLANTS IN A LIVING HEALTHY CONDITION UPON THE TIME FOR TERMINATION OF HIS RESPONSIBILITY FOR CARE AS SET OUT HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLANTS THROUGHOUT LIFE OF THE CONTRACT.

5.4) ALL PLANTS STOLEN, DAMAGED OR DESTROYED BY FIRE, AUTOMOBILES, VANDALISM OR ANY OTHER CAUSE, WITH THE EXCEPTION OF PLANTS DAMAGED OR DESTROYED BY THE OWNERS MAINTENANCE OPERATIONS, SHALL BE REPLACED BY THE OWNER PRIOR TO THE DATE OF FINAL ACCEPTANCE.

5.5) LANDSCAPE CONTRACTOR SHALL PREPARE MAINTENANCE SPECIFICATIONS AND SCHEDULE ANNUAL CARE OF ALL PLANTED AND LAWN AREAS INCLUDING FERTILIZING, WEEDING, MULCHING, BED EDGING, PRUNING AND PEST PREVENTION AND TREATMENT.

Plant Material Guarantee:

*CONTRACTOR SHALL GUARANTEE IN WRITING ALL PLANT MATERIAL AND LANDSCAPE IMPROVEMENTS FOR A PERIOD OF ONE YEAR. THE GUARANTEE IS TO INCLUDE THE FOLLOWING:

6.1) INSPECTIONS: PERFORM PERIODIC INSPECTIONS DURING GUARANTEE PERIOD WITH RESULTING WRITTEN REPORTS TO OWNER, PROJECT ADMINISTRATOR AND LANDSCAPE ARCHITECT STATING CONDITIONS AND RECOMMEND MAINTENANCE MODIFICATIONS. THE CONTRACTOR MUST CONTACT THE OWNER AND LANDSCAPE ARCHITECT AT LEAST 10 DAYS IN ADVANCE TO SCHEDULE ACCEPTANCE INSPECTION(S).

6.2) REMOVAL AND REPLACEMENT OF PLANTS PROVIDED BY CONTRACTOR TO BE DONE WITHIN THIRTY DAYS OF NOTIFICATION BY OWNER OF THEIR UNSATISFACTORY CONDITION DURING GROWING SEASONS. REPLACEMENT MATERIALS MUST BE EQUAL IN TYPE AND SIZE PER THE PROJECT'S PLANT LIST.

6.3) WHEN REPLACEMENT PLANT SPECIES IS EITHER NOT READILY AVAILABLE OR NO LONGER SUITABLE TO EXISTING SITE CONDITIONS WRITTEN NOTICE RECOMMENDATION OF SUBSTITUTION TO BE PROVIDED TO THE OWNER AND LANDSCAPE ARCHITECT WITHIN FIFTEEN DAYS FOR APPROVAL.

6.4) REMOVAL OF TREE'S SUPPORTS AND DEAD LIMBS PRIOR TO END OF GUARANTEE INSPECTION PERIOD.

6.5) CONTINUE WITH MAINTENANCE, SEE SECTION 5.0

6.6) GUARANTEE SHALL BEGIN UPON DATE OF FINAL ACCEPTANCE FROM OWNER AND WILL CONTINUE FOR ONE YEAR.

Site Cleanup:

7.1) SITE WORK CONDITIONS: EXCESS WASTE MATERIAL SHALL BE REMOVED DAILY WHEN PLANTING IN AN AREA HAS BEEN COMPLETED, THE AREA SHALL BE CLEARED OF ALL DEBRIS, SOIL PILES AND CONTAINERS DAILY. WHERE EXISTING GRASS AREAS HAVE BEEN DAMAGED OR SCARRED DURING PLANTING OPERATIONS, THE CONTRACTOR SHALL RESTORE DISTURBED AREAS TO THEIR ORIGINAL CONDITIONS AT HIS EXPENSE.

7.2) CLEAN PAVED AREAS UTILIZED FOR HAULING OR EQUIPMENT STORAGE AT END OF EACH WORKDAY.

7.3) MAINTAIN VEHICLES AND EQUIPMENT IN CLEAN CONDITION TO PREVENT SOILING OF ROADS, WALKS OR OTHER PAVED OR SURFACED AREAS.

7.4) REMOVE PROTECTIVE BARRIERS AND WARNING SIGNS AT TERMINATION OF LAWN ESTABLISHMENT.

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Date: 5/17/19

Revisions:
Num. Date Description

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. HAWK
REGISTERED LANDSCAPE ARCHITECT
No. 918
5/22/19

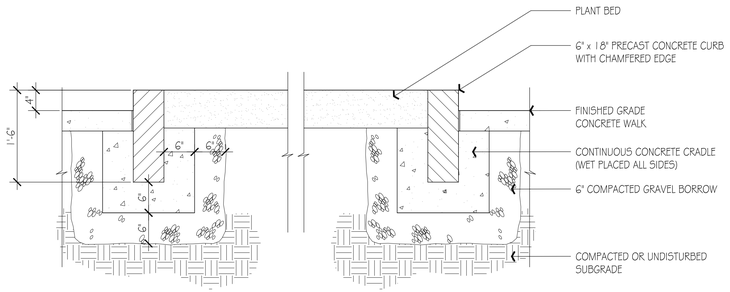
Hanover Crossing
1775 Washington Street, Hanover, Massachusetts
Prepared for: PREP Real Estate Partners LLC

Drawn By: BNL | Checked By: TM

Planting Notes

Scale: As Noted

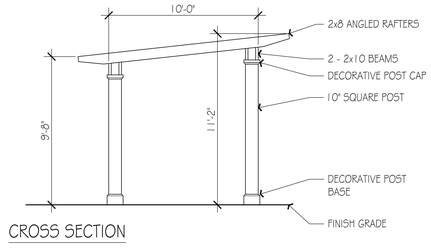
Sheet: D2



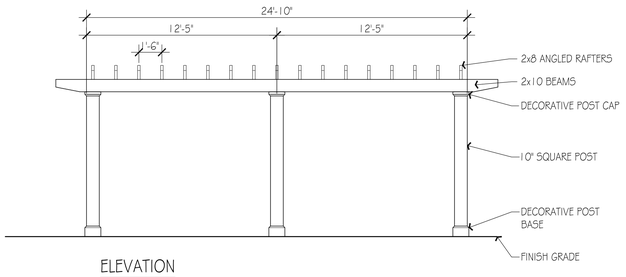
Concrete Curb Planter

0 1 2 3 feet

SCALE: 1" = 1'-0"



CROSS SECTION

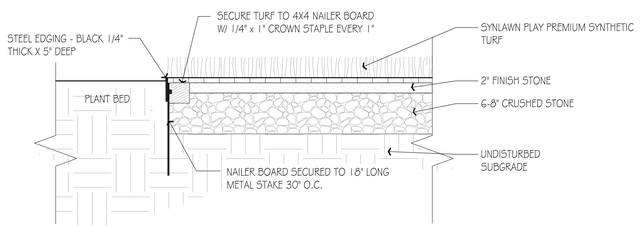


ELEVATION

Conceptual Central Green Pergola

0 4 8 12 feet

SCALE: 1/4" = 1'-0"



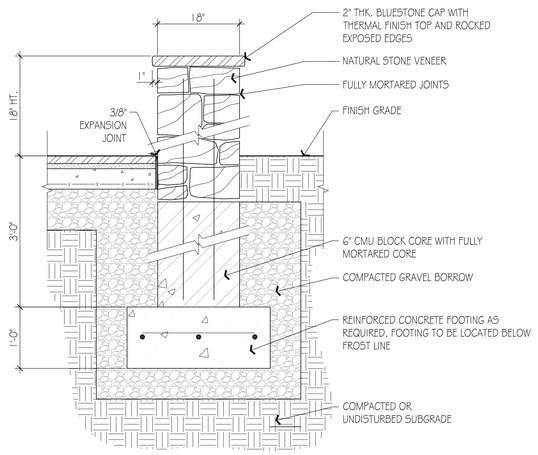
NOTES:
1. REFER TO MANUFACTURER'S SPECIFICATIONS FOR FURTHER INFORMATION. LA TO BE NOTIFIED OF ANY DISCREPANCIES.
2. TO BE INSTALLED BY AUTHORIZED SYNLAWN INSTALLER IN ACCORDANCE WITH MANUFACTURES SPECIFICATIONS AND GUIDELINES.

Central Green Synthetic Turf

Scale: Not to Scale

NOTES:
1. REFER TO SITE PLANTING PLANS FOR LOCATIONS OF TEXTURED AND COLORED CONCRETE.
2. CONCRETE COLOR SELECTION TO BE DETERMINED.

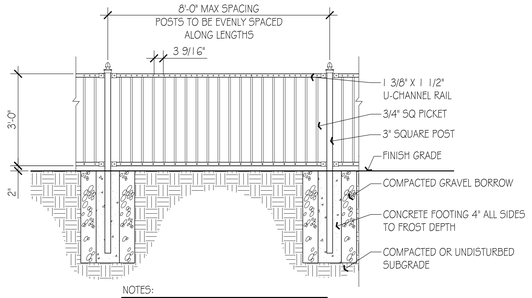
Textured and Colored Concrete



Central Green Stone Wall

0 1 2 3 feet

SCALE: 1" = 1'-0"



NOTES:
1. FOOTING WIDTH TO BE (4)X POST WIDTH.
2. COLOR- BLACK

Ornamental Metal Fence

0 2 4 6 feet

SCALE: 1/2" = 1'-0"

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