

# SITE DEVELOPMENT PLANS

**APPROVED**

By Bellingham Planning Board at 9:30 am, Sep 06, 2017

## FOR 160 HIGH STREET BELLINGHAM, MA

NOVEMBER 11, 2015

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SHEET No.	DESCRIPTION	LATEST REVISED DATE	CONSTRUCTION	REVISIONS	
1	COVER SHEET	06/27/17	△		
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### APPLICANT:

CAMPANELLI BELLINGHAM LLC  
10 CAMPANELLI DRIVE  
BRAINTREE, MA 02184

### OWNER:

HCRI MA PROPERTIES TRUST II  
4500 DORR AVENUE  
TOLEDO, OH 43615

### CIVIL ENGINEERS:

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

### TRAFFIC CONSULTANT:

VANASSE & ASSOCIATES, INC.  
33 NEW ENGLAND BUSINESS CENTER DRIVE  
ANDOVER, MA 01810

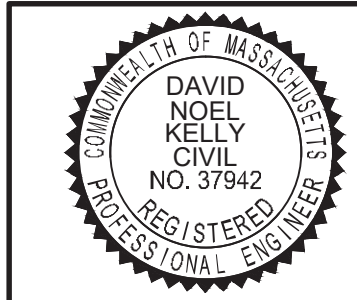


### LOCATION MAP

SCALE= 1"= 2,000'

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Digitally signed by David Noel Kelly P.E.  
DN: cn=David Noel Kelly P.E., o=Kelly Engineering Group, Inc., ou, email=dkelly@kellyeng.com, c=US  
Date: 2017.06.27 15:03:33 -0400



SCALE	DISK REF. NO.
NA	F:\P\2015-061
DATE	DRAWN BY
11/11/15	C.L.
SHEET	CHKD BY
1 OF 23	DAM
PLAN NO.	APPD BY
2015-061-TS07	DNK

160 HIGH STREET BELLINGHAM, MA	
<b>KELLY ENGINEERING GROUP, INC.</b> CIVIL ENGINEERING CONSULTANTS	
0 CAMPANELLI DRIVE • BRAINTREE, MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028	

SHEET NO.

1



OBSERVATION HOLES PERFORMED BY BRANDON LI OF KELLY ENGINEERING GROUP, INC. AND WITNESSED BY MICHAEL CATALANO OF THE TOWN OF BELLINGHAM BOARD OF HEALTH.

TEST PIT LOG TP# 1		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-12"	A	SANDY LOAM
12"-36"	B	SANDY LOAM
36"-72"	C1	LOAMY SAND
72"-132"	C2	SANDY LOAM

SURFACE ELEVATION @ 211.2  
MOTTILING OBSERVED @ 60"  
WEEDING OBSERVED @ 108"

TEST PIT LOG TP# 2		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-8"	A	SANDY LOAM
8"-42"	B	SANDY LOAM
42"-60"	C1	SANDY LOAM
60"-120"	C2	SANDY LOAM

SURFACE ELEVATION @ 217.8  
MOTTILING OBSERVED @ 41"  
WEEDING OBSERVED @ 84"

TEST PIT LOG TP# 3		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-30"	FILL	NA
30"-36"	A	SANDY LOAM
36"-56"	B	SANDY LOAM
56"-144"	C	SANDY LOAM

SURFACE ELEVATION @ 220.8  
MOTTILING OBSERVED @ 58"  
WEEDING OBSERVED @ 78"

TEST PIT LOG TP# 4		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-8"	A	SANDY LOAM
8"-36"	B	SANDY LOAM
36"-60"	C1	LOAMY SAND
60"-132"	C2	SANDY LOAM

SURFACE ELEVATION @ 226.7  
NO MOTTILING OBSERVED  
STANDING WATER @ 108"

TEST PIT LOG TP# 5		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-8"	A	SANDY LOAM
8"-30"	B	SANDY LOAM
30"-156"	C	SANDY LOAM

SURFACE ELEVATION @ 230.6  
NO MOTTILING OBSERVED  
STANDING WATER @ 156"

TEST PIT LOG TP# 6		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-8"	A	SANDY LOAM
8"-27"	B	SANDY LOAM
27"-40"	C1	LOAMY SAND
40"-96"	C2	SANDY LOAM

SURFACE ELEVATION @ 213.1  
MOTTILING OBSERVED @ 36"  
NO WEEDING OBSERVED

TEST PIT LOG TP# 7		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-15"	A	SANDY LOAM
15"-36"	B	SANDY LOAM
36"-72"	C1	LOAMY SAND
72"-86"	C2	SANDY LOAM

SURFACE ELEVATION @ 210.3  
MOTTILING OBSERVED @ 66"  
WEEDING OBSERVED @ 90"

TEST PIT LOG TP# 8		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-8"	A	SANDY LOAM
8"-28"	B	SANDY LOAM
28"-57"	C1	SANDY LOAM
57"-144"	C2	LOAMY SAND

SURFACE ELEVATION @ 217.2  
MOTTILING OBSERVED @ 66"  
WEEDING OBSERVED @ 100"

TEST PIT LOG TP# 9		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-15"	A	LOAMY SAND
15"-40"	B	LOAMY SAND
40"-64"	C1	GRAVELLY SAND
64"-120"	C2	FINE SAND

SURFACE ELEVATION @ 216.8  
NO MOTTILING OBSERVED  
WEEDING OBSERVED @ 48"  
STANDING WATER @ 104"  
REFUSAL @ 120"

TEST PIT LOG TP# 10		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-12"	A	SANDY LOAM
12"-36"	B	SANDY LOAM
36"-56"	C1	LOAMY SAND
56"-120"	C2	SANDY LOAM

SURFACE ELEVATION @ 208.7  
MOTTILING OBSERVED @ 48"  
WEEDING OBSERVED @ 54"

TEST PIT LOG TP# 11		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-12"	A	SANDY LOAM
12"-30"	B	SANDY LOAM
30"-120"	C	SANDY LOAM

SURFACE ELEVATION @ 208.8  
MOTTILING OBSERVED @ 36"  
WEEDING OBSERVED @ 60"

TEST PIT LOG TP# 12		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-16"	A	SANDY LOAM
16"-36"	B	SANDY LOAM
36"-72"	C1	SANDY LOAM
72"-132"	C2	LOAMY SAND

SURFACE ELEVATION @ 228.0  
MOTTILING OBSERVED @ 144"  
NO WEEDING OBSERVED

TEST PIT LOG TP# 13		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-18"	A	SANDY LOAM
18"-42"	B	LOAMY SAND
42"-84"	C1	SANDY LOAM
84"-144"	C2	SAND

SURFACE ELEVATION @ 220.0  
MOTTILING OBSERVED @ 144"  
NO WEEDING OBSERVED

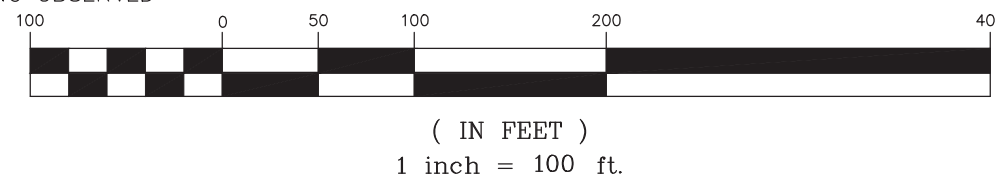
TEST PIT LOG TP# 14		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-14"	A	LOAMY SAND
14"-36"	B	LOAMY SAND
36"-120"	C1	SANDY LOAM
120"-156"	C2	SANDY LOAM

SURFACE ELEVATION @ 217.0  
MOTTILING OBSERVED @ 118"  
WEEDING OBSERVED @ 120"  
STANDING WATER @ 132"

TEST PIT LOG TP# 15		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-12"	A	LOAMY SAND
12"-36"	B	LOAMY SAND
36"-84"	C1	SAND
84"-144"	C2	SANDY LOAM

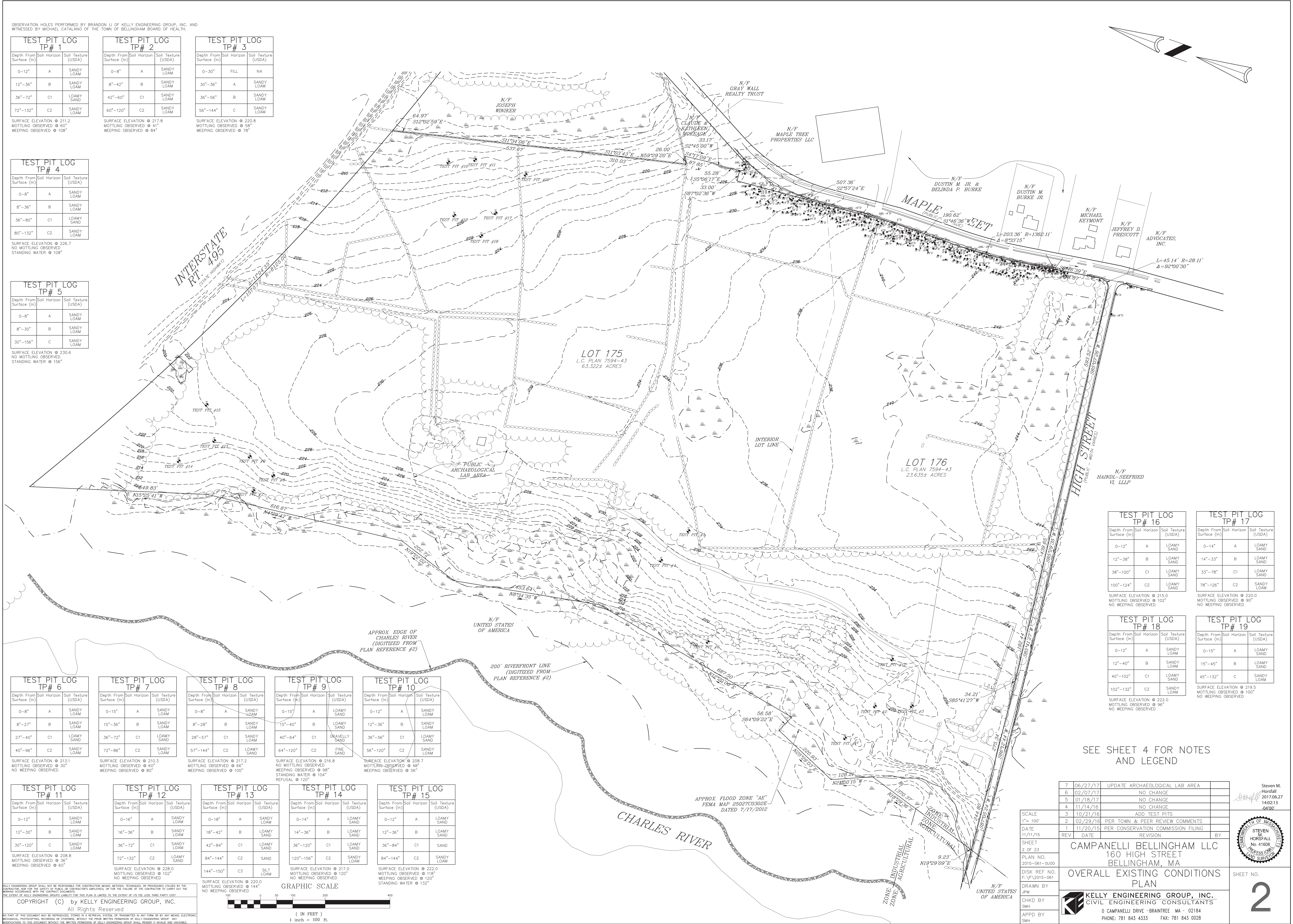
SURFACE ELEVATION @ 222.0  
MOTTILING OBSERVED @ 118"  
WEEDING OBSERVED @ 120"  
STANDING WATER @ 132"

GRAPHIC SCALE



( IN FEET )

1 inch = 100 ft.



TEST PIT LOG TP# 16		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-12"	A	LOAMY SAND
12"-38"	B	LOAMY SAND
38"-100"	C1	LOAMY SAND
100"-124"	C2	LOAMY SAND

SURFACE ELEVATION @ 215.0  
MOTTILING OBSERVED @ 102"  
NO WEEDING OBSERVED

TEST PIT LOG TP# 17		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-14"	A	LOAMY SAND
14"-33"	B	LOAMY SAND
33"-78"	C1	LOAMY SAND
78"-126"	C2	SANDY LOAM

SURFACE ELEVATION @ 210.0  
MOTTILING OBSERVED @ 90"  
NO WEEDING OBSERVED

TEST PIT LOG TP# 18		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-12"	A	SANDY LOAM
12"-40"	B	SANDY LOAM
40"-102"	C1	LOAMY SAND
102"-132"	C2	SANDY LOAM

SURFACE ELEVATION @ 222.0  
MOTTILING OBSERVED @ 96"  
NO WEEDING OBSERVED

TEST PIT LOG TP# 19		
Depth From Surface (in)	Soil Horizon	Soil Texture (USDA)
0-15"	A	LOAMY SAND
15"-45"	B	LOAMY SAND
45"-132"	C	SANDY LOAM

SURFACE ELEVATION @ 219.5  
MOTTILING OBSERVED @ 100"  
NO WEEDING OBSERVED

SEE SHEET 4 FOR NOTES AND LEGEND

7	06/27/17	UPDATE ARCHAEOLOGICAL LAB AREA	
6	02/07/17	NO CHANGE	
5	01/18/17	NO CHANGE	
4	11/14/16	NO CHANGE	
3	10/21/16	ADD TEST PITS	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY
CAMPANELLI BELLINGHAM LLC 160 HIGH STREET BELLINGHAM, MA			
OVERALL EXISTING CONDITIONS PLAN			
KELLY ENGINEERING GROUP, INC. CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAINTREE, MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028			

STEVEN M. HORSFALL  
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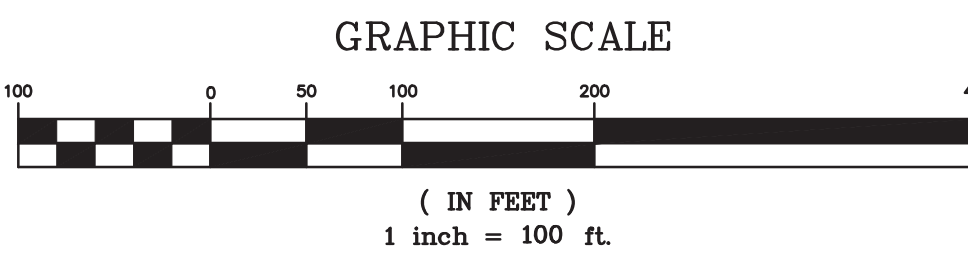
STEVEN M. HORSFALL  
No. 41608  
PROFESSIONAL  
LAND SURVEYOR

SHEET NO. 2



ZONING LEGEND				
ZONING DISTRICT: INDUSTRIAL				
	REQUIRED	PROVIDED LOT 1	PROVIDED LOT 2	COMPLIANCE
MIN. AREA	60,000 S.F. (1.38± AC.)	22.0± AC.	64.6± AC.	YES
MIN. FRONTAGE	200'	1,017'±	1,196'± (NOTE 5)	YES
MIN. YARD				
-FRONT	20' (NOTE 1)	36'±	28'±	YES
-SIDE	10' (NOTE 2)	21'±	25'±	YES
-REAR	20' (NOTE 1)	80'±	450'±	YES
MAX. STORIES	N/A	1	1	N/A
MAX. HEIGHT	45'	<45'	<45'	YES
LOT COVERAGE	N/A	13.3%	10.7%	N/A
PARKING TOTAL	(NOTE 3)	95	243 (52 RESERVE)	BY SPECIAL PERMIT
-SIZE	9' x 18'	9' x 18'	9' x 18'	YES
-HANDICAP	(NOTE 4)	4	8	YES
-LOADING	AS NECESSARY	25	54	YES
BICYCLE PARKING	1 / 20 SPACES	6	16	YES
PARKING SETBACK				
-FRONT	20'	368'±	257'±	YES
-SIDE	N/A	308'±	284'±	N/A
-REAR	N/A	83'±	378'±	N/A
-BUILDING	N/A	15'±	15'±	N/A
aisle width	N/A	24'	24'	N/A
INTERIOR LANDSCAPE	5%	>5%	>5%	YES

- NOTES:
- INCREASE TO 100' WHEN ADJOINING A RESIDENTIAL, SUBURBAN, OR AGRICULTURAL DISTRICT.
  - INCREASE TO 30' WHEN ADJOINING A RESIDENTIAL, SUBURBAN, OR AGRICULTURAL DISTRICT.
  - REQUIRED PARKING: INDUSTRIAL = 2 SPACES / 1,000 S.F.  
LOT 1 = 255 SPACES, LOT 2 = 600 SPACES.
  - REQUIRED HANDICAP PARKING:  
LOT 1 = 4 SPACES, LOT 2 = 7 SPACES.
  - FRONTAGE ON MAPLE STREET ONLY LISTED



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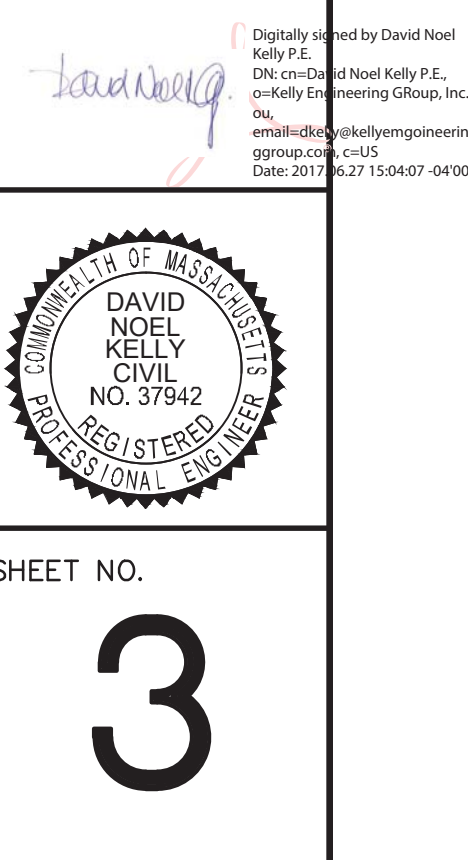
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EXISTING LEGEND	
	STONE WALL
	EDGE OF WETLANDS
	FLOODPLAIN

PROPOSED LEGEND	
CCB	CAPE COD BERM
VCC	VERTICAL GRANITE CURB
CC	CONCRETE CURB
H	HANDICAP SPACE
V	VAN HANDICAP SPACE
→	HANDICAP RAMP
—	CURB STOP
	STANDARD PAVEMENT
	GRAVEL EMERGENCY ACCESS DRIVE
	REPLICATED WETLANDS
	REPLICATED WETLANDS SYMBOL
	PROPERTY LINE
	BUFFER ENHANCEMENT
	LIGHT FIXTURES

7	06/27/17	REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION	
6	02/07/17	NO CHANGE	
5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS	
4	11/14/16	PER TOWN & PEER REVIEW COMMENTS	
3	10/21/16	REVISED SITE LAYOUT	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY
SHEET 3 OF 23			
PLAN NO. 2015-061-LA07			
DISK REF NO. F:\P\2015-061			
DRAWN BY C.J.L.			
CHKD BY DAM			
APPD BY D.N.K.			
CAMPANELLI BELLINGHAM LLC 160 HIGH STREET BELLINGHAM, MA OVERALL LAYOUT PLAN			
KELLY ENGINEERING GROUP, INC. CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAintree MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028			
SHEET NO. 3			







- NOTES:**
- 1.) Topographical information shown hereon is based on record information supplemented with on the ground survey data.
  - 2.) Elevations shown hereon are based on NAVD 1988 datum.
  - 3.) Utilities shown hereon are approximate only and should be field verified prior to any work being performed on the site.
  - 4.) Contour lines and site features shown hereon have been digitized from plan reference #2. Field survey has been performed to confirm the conditions shown hereon.
  - 5.) Wetlands shown hereon were flagged by Ecotec, Inc. and field located by Kelly Engineering Group, Inc.

LEGEND	
	CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	WATER LINE
	WATER VALVE
	HYDRANT
	UTILITY POLE
	CAPE COD BERM
	BOUND
	WETLAND LINE
	WETLAND
	WETLAND FLAG
	FLOOD PLAIN LINE
	CONTOUR MAJOR
	CONTOUR MINOR
	TREE LINE
	STONE WALL

- PLAN REFERENCES:**
- 1.) LAND COURT PLAN 7594-43
  - 2.) PLAN ENTITLED, "TOPOGRAPHIC PLAN - PROJECT: BCL PREMIER SPORTS ATHLETIC COMPLEX - PREPARED FOR LIG DEVELOPMENT COMPANY, LLC - PREPARED BY BEALS AND THOMAS, INC., 144 TURNPIKE RD. (RT. 9), SOUTHBOROUGH, MASS., DATED DEC. 5, 2007.
  - 3.) LAND COURT PLAN 7594-A

GRAPHIC SCALE

( IN FEET )

1 inch = 50 ft.

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5	01/18/17	NO CHANGE	
4	11/14/16	NO CHANGE	
3	10/21/16	NO CHANGE	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY

SHEET 4 OF 23

PLAN NO. 2015-061-SU00

DISK REF NO. F:\P\2015-061

DRAWN BY JPM

CHKD BY SMH

APPD BY SMH

**CAMPANELLI BELLINGHAM LLC**  
160 HIGH STREET  
BELLINGHAM, MA

**EXISTING CONDITIONS PLAN (PART A)**

**KELLY ENGINEERING GROUP, INC.**  
CIVIL ENGINEERING CONSULTANTS  
0 CAMPANELLI DRIVE · BRAINTREE MA · 02184  
PHONE: 781 843 4333 FAX: 781 843 0028

STEVEN M. HORSFALL  
2017.01.20  
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STEVEN M. HORSFALL  
No. 41608  
PROFESSIONAL LAND SURVEYOR

SHEET NO. **4**

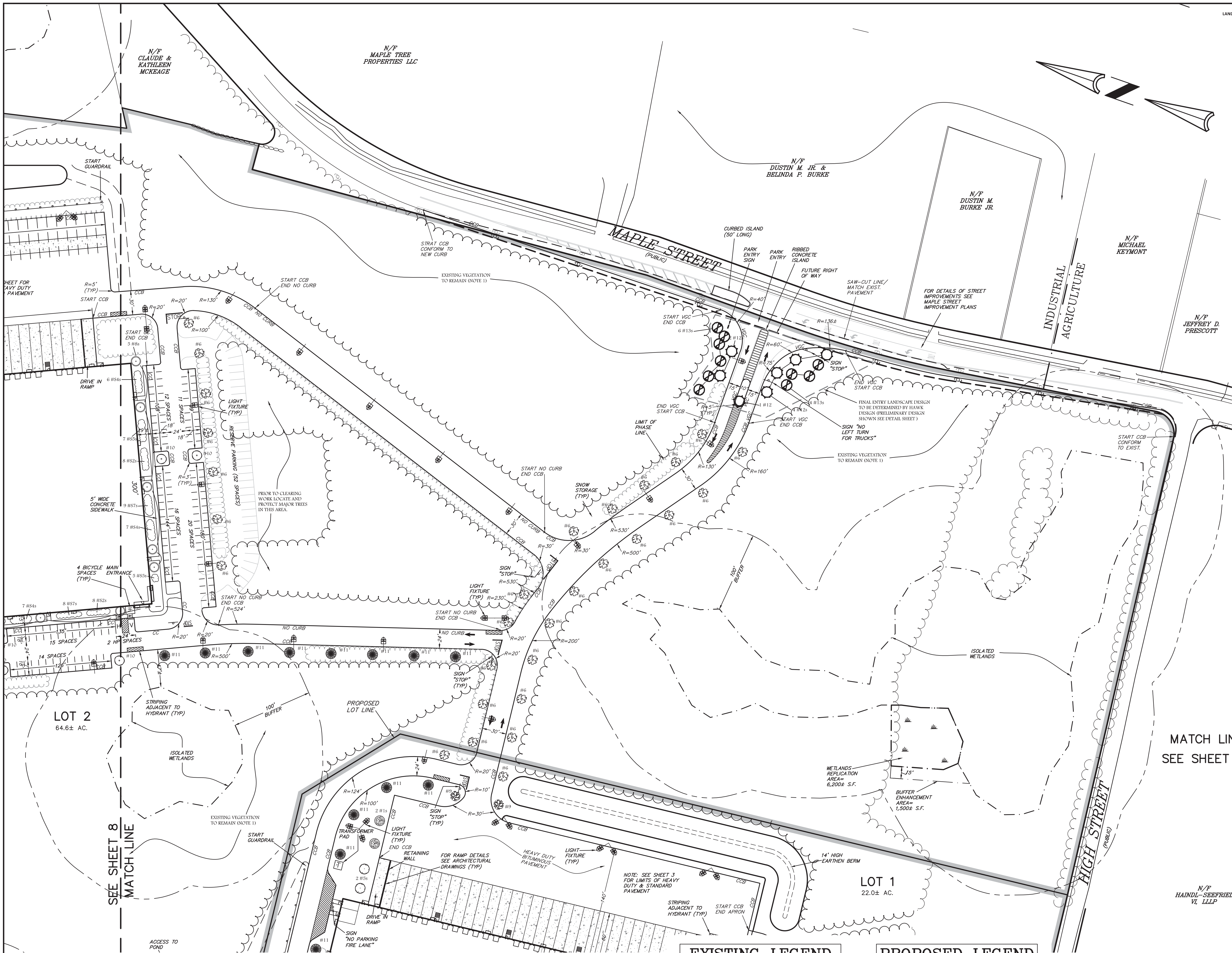












LANDSCAPING REQUIREMENTS CHAPTER 240 ARTICLE XI

SCENIC ROAD TREES	TREES REMOVED NUMBER	REPLACEMENT REQUIRED RATE	REPLACEMENT REQUIRED NUMBER
TREES < 12"	1	1 PER TREE	1
TREES > 12" TO 24"	0	3 PER TREE	0
TREES > 24"	1	4 PER TREE	4
TOTAL REPLACEMENT TREES REQUIRED			5
TOTAL REPLACEMENT TREES PROVIDED			22

NOTE: SEE CONCEPTUAL ENTRANCE SKETCH BY HAWK DESIGN, INC.

STREET PLANTING AREA	TREES REQUIRED 1 TREE PER 30 LF (NUMBER)	TREES PROVIDED (NUMBER)	SHRUBS REQUIRED 1 SHRUB PER 1 LF (NUMBER)	SHRUBS PROVIDED (NUMBER)
FRONTAGE				
TOTAL: 3,000 +/- LINEAR FEET	100	>100*	1,000	* (DEVELOPMENT PLAN APPROVAL)

\*EXISTING VEGETATION ALONG RIGHT OF WAY EXCEED NUMBER REQUIRED

NOTE: LOCATION OF STREET FRONT PLANTINGS IS BEYOND 15 FEET FROM PROPERTY LINE TO MAINTAIN EXISTING MATURE VEGETATION ALONG STREET

SIDELINE PLANTING AREA (NORTH SIDE)	TREES REQUIRED 1 TREE PER 30 LF (NUMBER)	TREES PROVIDED (NUMBER)	SHRUBS REQUIRED 1 SHRUB PER 1 LF (NUMBER)	SHRUBS PROVIDED (NUMBER)
FRONTLINE TO BUILDING SETBACK				
TOTAL 1,708 FT (SEE ZONING LEGEND)	59	>59*	590	>590*

\*EXISTING VEGETATION ALONG SIDELINE EXCEED NUMBER REQUIRED

PARKING AREA PLANTING AREA (LOT 1 PARKING AREA)	TREES REQUIRED 1 TREE PER 1,500 S.F. (NUMBER)	TREES PROVIDED (NUMBER)	SHRUBS REQUIRED 4 SHRUBS PER 1,500 S.F. (NUMBER)	SHRUBS PROVIDED (NUMBER)	REQUIRED INTERIOR LANDSCAPED AREA (PERCENTAGE)	PROVIDED INTERIOR LANDSCAPED AREA (PERCENTAGE)
PAVED PARKING AREA						
27,738 S.F.	19	20	74	78 (DEVELOPMENT PLAN APPROVAL)	5%	7.00%

PARKING AREA PLANTING AREA (LOT 2 PARKING AREA)	TREES REQUIRED 1 TREE PER 1,500 S.F. (NUMBER)	TREES PROVIDED (NUMBER)	SHRUBS REQUIRED 4 SHRUBS PER 1,500 S.F. (NUMBER)	SHRUBS PROVIDED (NUMBER)	REQUIRED INTERIOR LANDSCAPED AREA (PERCENTAGE)	PROVIDED INTERIOR LANDSCAPED AREA (PERCENTAGE)
PAVED PARKING AREA						
73,016 S.F.	48	40 (DEVELOPMENT PLAN APPROVAL)	192	178 (DEVELOPMENT PLAN APPROVAL)	5%	6.00%

PLANTING LEGEND

TREES	KEY	QUANTITY	COMMON NAME	BOTANICAL NAME	SIZE	SPEC
1	2	NOT Labeled	COLORADO BLUE SPRUCE	PICEA PUNGENS	6'-7'	B & B
3	5	NOT Labeled	SERBIAN SPRUCE	PICEA OMORICA	8'	B & B
5	7	NOT Labeled	DOUGLAS FIR	PSEUDOTSUGA MENZIESII	8'	B & B
6	29	NOT Labeled	OCTOBER GLORY RED MAPLE	ACER RUFUM VAR 'OCTOBER GLORY'	5" CALIPER	B & B
8	33	NOT Labeled	BRADFORD CALERY	PYRUS CALLERYANA 'BRADFORD'	2 1/2"-3"	B & B
9	2	NOT Labeled	RED OAK	QUERCUS RUBRA	2 1/2"-3" CALIPER	B & B
10	21	NOT Labeled	ZELEKOVA 'VILLAGE GREEN'	ZELEKOVA SERRATA 'VILLAGE GREEN'	2 1/2"-3" CALIPER	B & B
11	16	NOT Labeled	LONDON PLANE TREE	PLATANUS X ACERIFOLIA VAR.	2 1/2"-3" CALIPER	B & B
12	7	NOT Labeled	SHADE TREE	SHADE TREE	2 1/2"-3" CALIPER	B & B
13	10	NOT Labeled	EVERGREEN TREE	EVERGREEN TREE	2 1/2"-3" CALIPER	B & B
TOTAL = 132						

SHRUBS

61	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled
62	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled
63	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled
64	65	NOT Labeled	MOUNTAIN LAUREL	KALMIA LATIFOLIA	3'-4'	B & B
65	70	NOT Labeled	INK BERRY	ILEX GLABRA	2'-3'	B & B
66	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled	NOT Labeled
67	60	NOT Labeled	CARLE VIBURNUM	VIBURNUM CARLE	#7 POT	B & B
TOTAL = 256						

- NOTE 1. VEGETATION TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION. THESE AREAS SHALL BE PRUNED AS NECESSARY TO PROVIDE A HEALTHY BUFFER.
2. PLANT SHRUBS & TREES 5' FROM CURB IF POSSIBLE
3. FINAL TREE SPECIES AT THE ENTRANCE TO BE FINALIZED BY HAWK DESIGN.

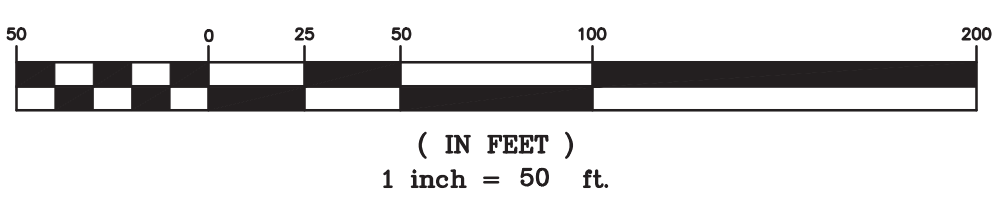
EXISTING LEGEND

-----	STONE WALL
-----	EDGE OF WETLANDS
-----	FLOODPLAIN
-----	TREE LINE

PROPOSED LEGEND

CCB	CAPE COD BERM
VCC	VERTICAL GRANITE CURB
CC	CONCRETE CURB
H	HANDICAP SPACE
V	VAN HANDICAP SPACE
→	HANDICAP RAMP
==	CURB STOP
≡	REPLICATED WETLANDS
≡	REPLICATED WETLANDS SYMBOL
---	PROPERTY LINE
---	BUFFER ENHANCEMENT
---	SNOW STORAGE
---	WOOD POST GUARDRAIL
---	TREE LINE
---	LIGHT FIXTURES

GRAPHIC SCALE



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7 06/27/17 REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION

6 02/07/17 PER PEER REVIEW COMMENTS

5 01/18/17 REVISED SITE LAYOUT PER TOWN COMMENTS

4 11/14/16 PER TOWN & PEER REVIEW COMMENTS

3 10/21/16 REVISED SITE LAYOUT

2 02/29/16 PER TOWN & PEER REVIEW COMMENTS

1 11/20/15 PER CONSERVATION COMMISSION FILING

REV DATE REVISION BY

SCALE 1" = 50'

DATE 11/11/15

SHEET 7 OF 23

PLAN NO. 2015-061-LA07

DISK REF NO. F:\P\2015-061

DRAWN BY C.J.L.

CHKD BY DAM

APPD BY DNK

CAMPANELLI BELLINGHAM LLC

160 HIGH STREET

BELLINGHAM, MA

LAYOUT & LANDSCAPING PLAN (PART A)

KELLY ENGINEERING GROUP, INC.

CIVIL ENGINEERING CONSULTANTS

0 CAMPANELLI DRIVE • BRAintree MA • 02184

PHONE: 781 843 4333 FAX: 781 843 0028

DAVID NOEL KELLY CIVIL NO. 37942 REGISTERED PROFESSIONAL ENGINEER

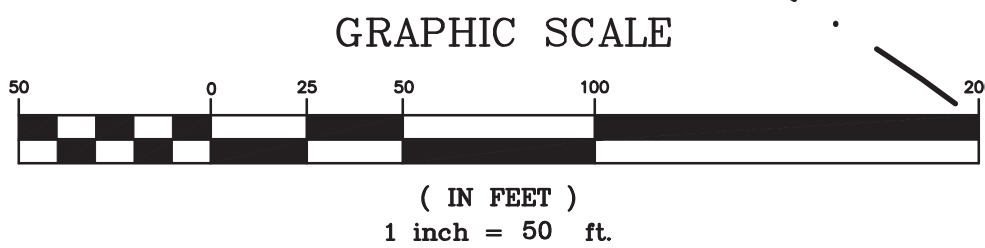
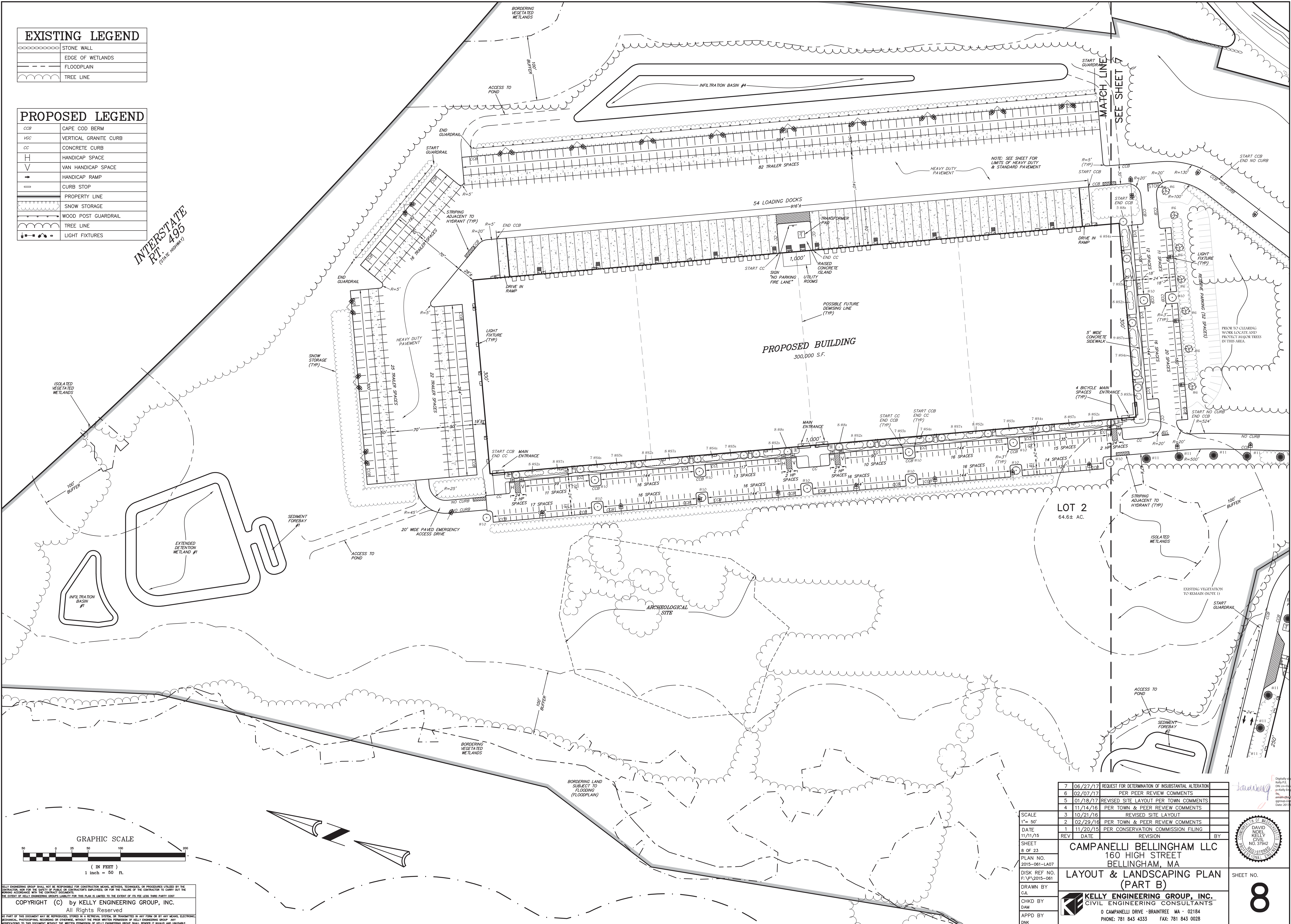
SHEET NO. 7



EXISTING LEGEND	
	STONE WALL
	EDGE OF WETLANDS
	FLOODPLAIN
	TREE LINE

PROPOSED LEGEND	
CCB	CAPE COD BERM
VGC	VERTICAL GRANITE CURB
CC	CONCRETE CURB
H	HANDICAP SPACE
V	VAN HANDICAP SPACE
	HANDICAP RAMP
	CURB STOP
	PROPERTY LINE
	SNOW STORAGE
	WOOD POST GUARDRAIL
	TREE LINE
	LIGHT FIXTURES

INTERSTATE  
RT. 495  
(STATE HIGHWAY)



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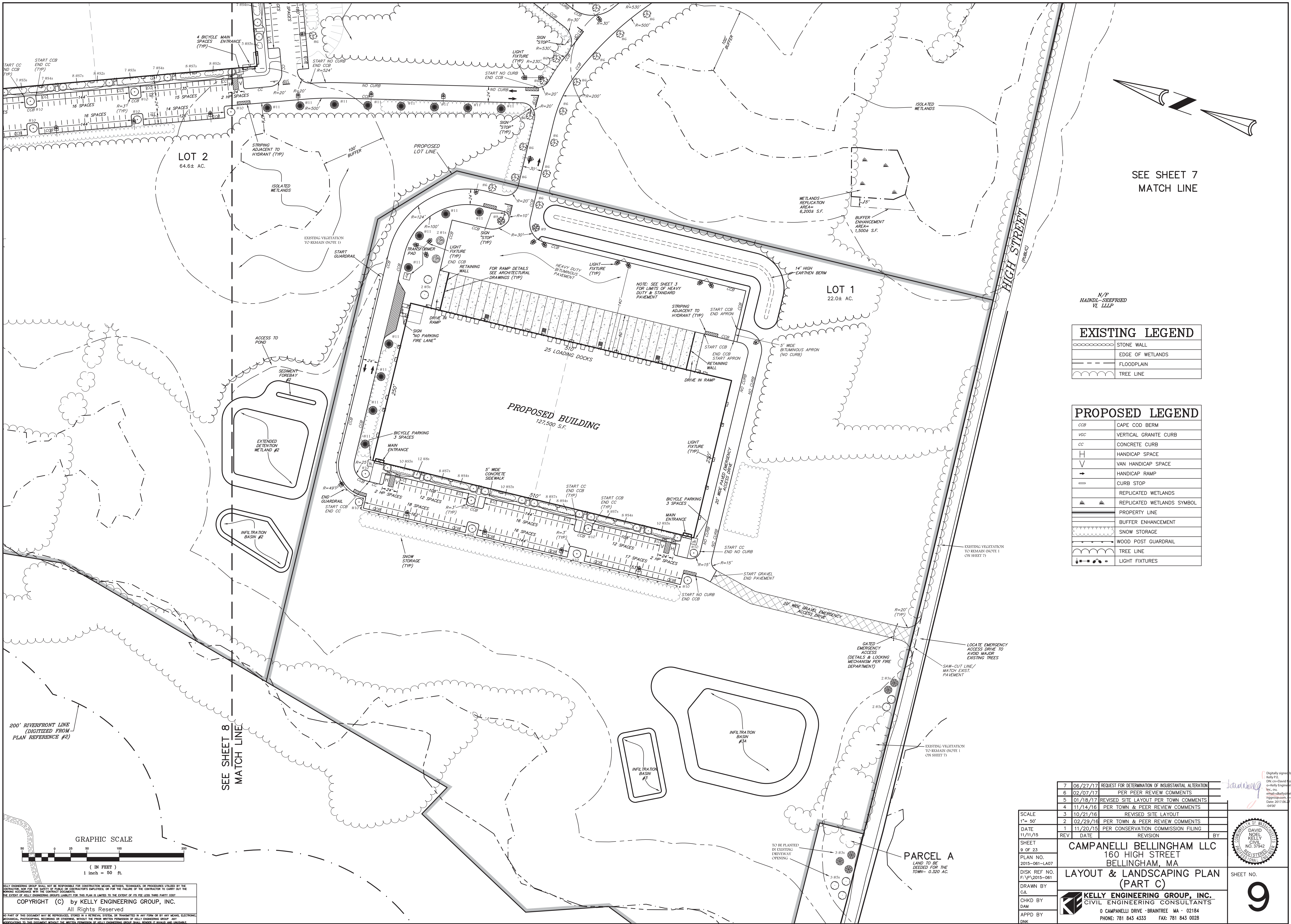
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2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
DATE	11/11/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY
SHEET	8 OF 23		
PLAN NO.	2015-061-LA07		
DISK REF NO.	F:\P\2015-061		
DRAWN BY	C.J.L.		
CHKD BY	DAM		
APPD BY	DNK		
CAMPANELLI BELLINGHAM LLC 160 HIGH STREET BELLINGHAM, MA <b>LAYOUT &amp; LANDSCAPING PLAN (PART B)</b> <b>KELLY ENGINEERING GROUP, INC.</b> CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAINTREE MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028			
SHEET NO.			8

Digitally signed by David Noel Kelly P.E.  
 DN: cn=David Noel Kelly P.E., o=Kelly Engineering Group, Inc., email=dkelly@kellyengineering.com, c=US  
 Date: 2015.06.27 15:05:01 -0400

DAVID NOEL KELLY  
 CIVIL  
 NO. 37942  
 REGISTERED PROFESSIONAL ENGINEER





SEE SHEET 7  
MATCH LINE

N/P  
HAINDL-SREPRIED  
VI, LLLP

EXISTING LEGEND	
	STONE WALL
	EDGE OF WETLANDS
	FLOODPLAIN
	TREE LINE

PROPOSED LEGEND	
CCB	CAPE COD BERM
VGC	VERTICAL GRANITE CURB
CC	CONCRETE CURB
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V	VAN HANDICAP SPACE
→	HANDICAP RAMP
—	CURB STOP
	REPLICATED WETLANDS
	REPLICATED WETLANDS SYMBOL
	PROPERTY LINE
	BUFFER ENHANCEMENT
	SNOW STORAGE
	WOOD POST GUARDRAIL
	TREE LINE
	LIGHT FIXTURES

200' RIVERFRONT LINE  
(DIGITIZED FROM  
PLAN REFERENCE #2)

SEE SHEET 8  
MATCH LINE

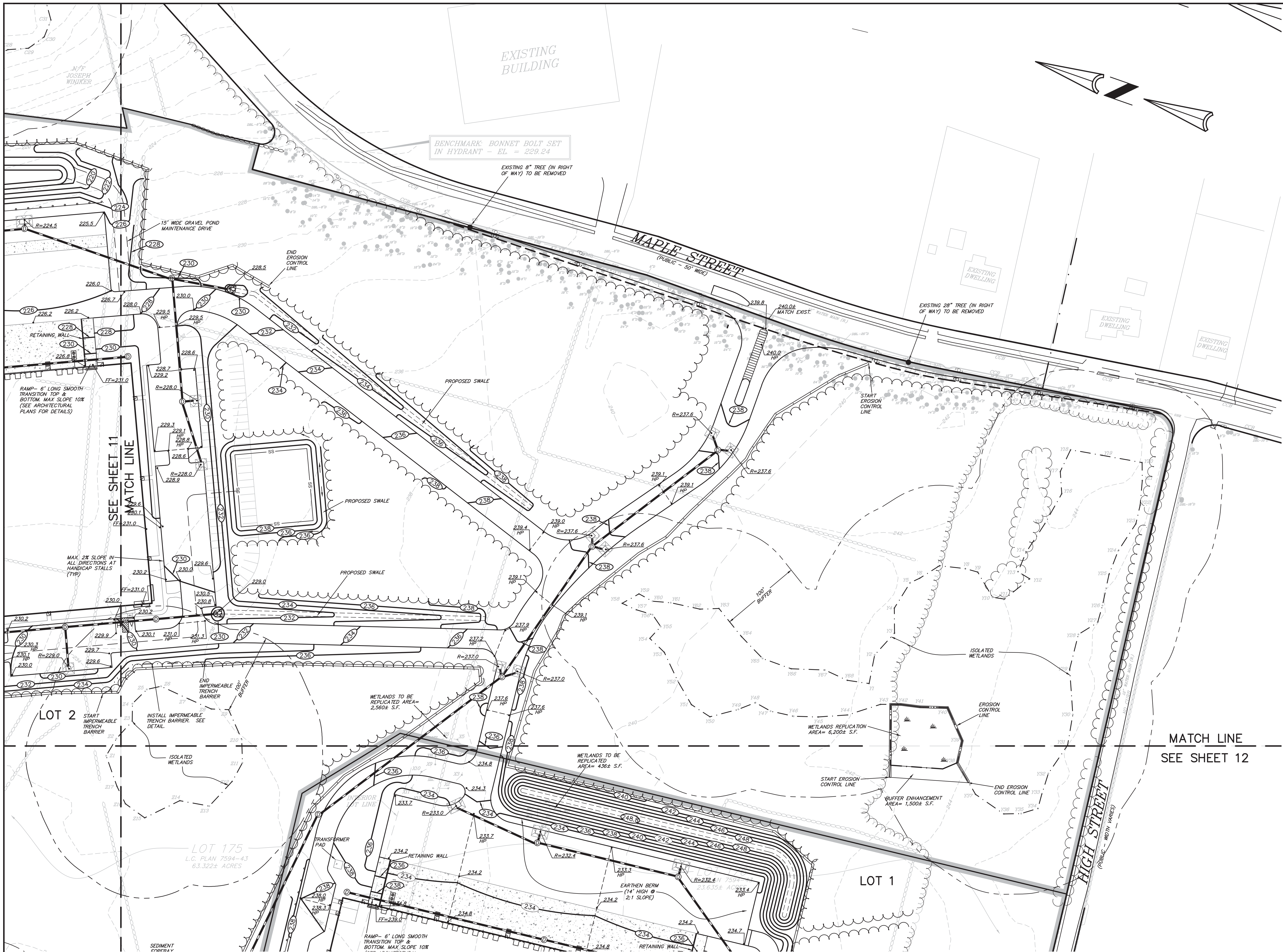
GRAPHIC SCALE

( IN FEET )  
1 inch = 50 ft.

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DISK REF NO. F:\P\2015-061			
DRAWN BY C.J.L.			
CHKD BY DAM			
APPD BY DNK			
SCALE 1"= 50'			
DATE 11/11/15			
SHEET 9 OF 23			
PLAN NO. 2015-061-LA07			
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CHKD BY DAM			
APPD BY DNK			
SCALE 1"= 50'			
DATE 11/11/15			



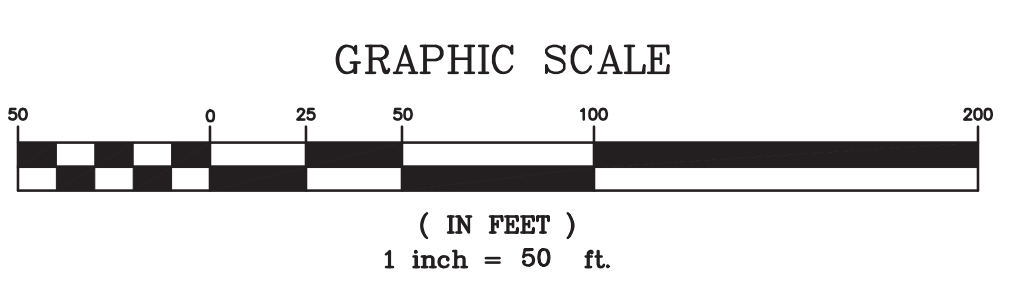


EXISTING LEGEND

	CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	WATER LINE
	WATER VALVE
	HYDRANT
	UTILITY POLE
	CAPE COD BERM
	BOUND
	WETLAND LINE
	WETLAND FLAG
	CONTOUR MAJOR
	CONTOUR MINOR
	TREE LINE
	STONE WALL

PROPOSED LEGEND

	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	PUMP CHAMBER
	SEWER LINE
	SEWER FORCE MAIN
	SPOT GRADE
	CONTOUR LINE
	EROSION CONTROL LINE
	SILT SACK
	PROPERTY LINE
	PROPOSED TREE LINE
	EXISTING TREE LINE TO REMAIN
	EXISTING STONE WALL TO REMAIN
	GUARDRAIL
	EXISTING TREE IN SCENIC ROAD TO BE REMOVED



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7	06/27/17	REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION	
6	02/07/17	NO CHANGE	
5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS	
4	11/14/16	PER TOWN & PEER REVIEW COMMENTS	
3	10/21/16	REVISED SITE LAYOUT	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY

SHEET 10 OF 23  
PLAN NO. 2015-061-G007  
DISK REF NO. F:\P\2015-061  
DRAWN BY C.L.  
CHKD BY DAM  
APPD BY DNK

**CAMPANELLI BELLINGHAM LLC**  
160 HIGH STREET  
BELLINGHAM, MA  
**GRADING PLAN (PART A)**

**KELLY ENGINEERING GROUP, INC.**  
CIVIL ENGINEERING CONSULTANTS  
0 CAMPANELLI DRIVE • BRAINTREE MA • 02184  
PHONE: 781 843 4333 FAX: 781 843 0028

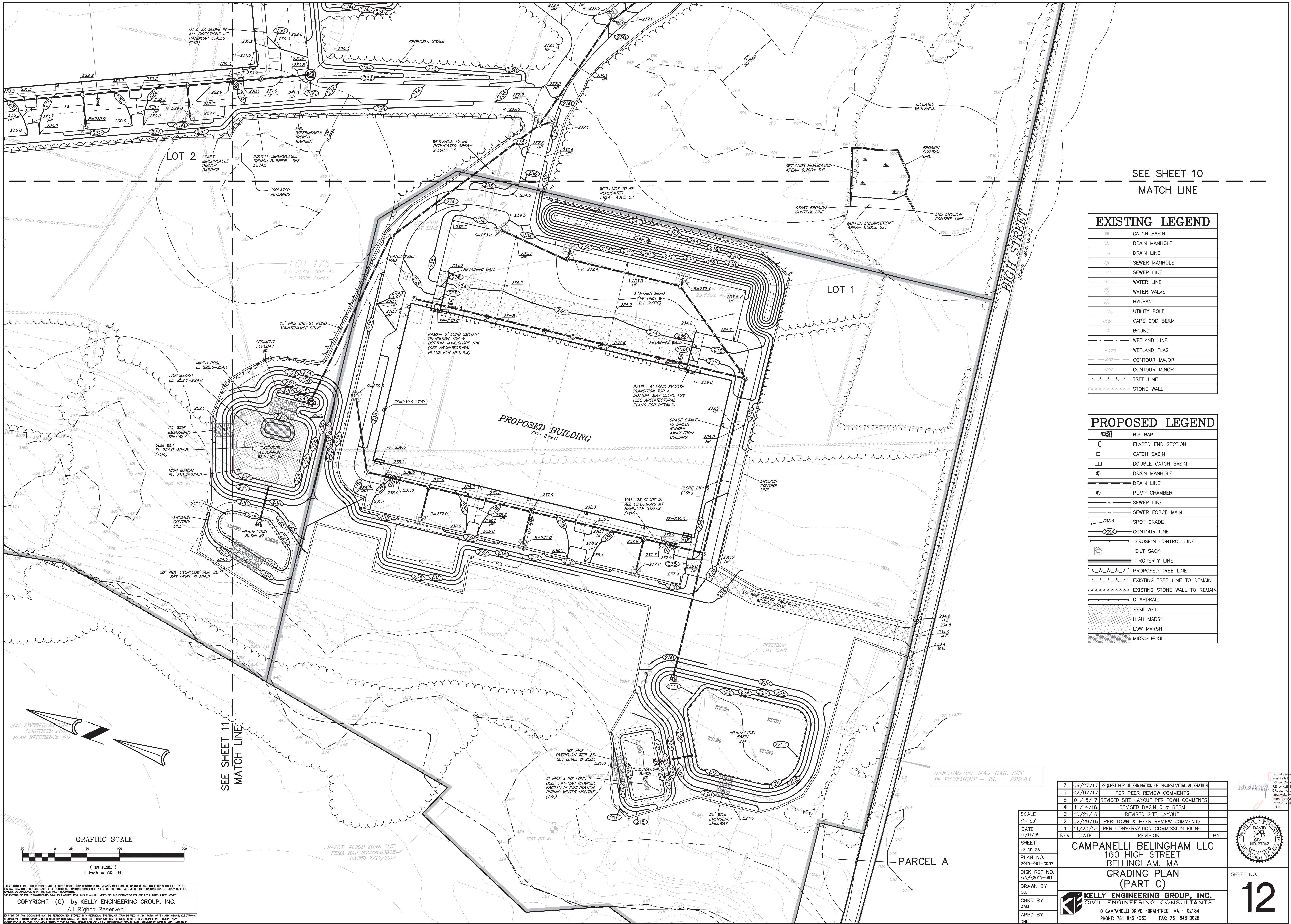
DAVID MOELL  
KELLY  
NO. 37942  
REGISTERED PROFESSIONAL ENGINEER

SHEET NO. **10**









SEE SHEET 10  
MATCH LINE

EXISTING LEGEND	
	CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	WATER LINE
	WATER VALVE
	HYDRANT
	UTILITY POLE
	CAPE COD BERM
	BOUND
	WETLAND LINE
	WETLAND FLAG
	CONTOUR MAJOR
	CONTOUR MINOR
	TREE LINE
	STONE WALL

PROPOSED LEGEND	
	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	PUMP CHAMBER
	SEWER LINE
	SEWER FORCE MAIN
	SPOT GRADE
	CONTOUR LINE
	EROSION CONTROL LINE
	PROPERTY LINE
	PROPOSED TREE LINE
	EXISTING TREE LINE TO REMAIN
	EXISTING STONE WALL TO REMAIN
	GUARDRAIL
	SEMI WET
	HIGH MARSH
	LOW MARSH
	MICRO POOL

7	06/27/17	REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION	
6	02/07/17	PER PEER REVIEW COMMENTS	
5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS	
4	11/14/16	REVISED BASIN 3 & BERM	
3	10/21/16	REVISED SITE LAYOUT	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY
SHEET 12 OF 23			
PLAN NO. 2015-061-G007			
DISK REF NO. F:\P\2015-061			
DRAWN BY C.L.			
CHKD BY DAM			
APPD BY DNK			
CAMPANELLI BELINGHAM LLC 160 HIGH STREET BELLINGHAM, MA GRADING PLAN (PART C)			
KELLY ENGINEERING GROUP, INC. CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAINTREE, MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028			

Digitally signed by David Noel Kelly  
DN: cn=David Noel Kelly, o=Kelly Engineering Group, Inc., email=dkelly@kellyeng.com, c=US  
Date: 2017.06.27 15:06:42 -0400

DAVID NOEL KELLY  
NO. 37842  
PROFESSIONAL SEAL

SHEET NO. 12

200' RIVERFRONT LINE (DIGITIZED FROM PLAN REFERENCE #2)

GRAPHIC SCALE  
1 inch = 50 ft.

APPROX FLOOD ZONE "A5"  
FEMA MAP: 25027C0202E  
DATED 7/17/2012

SEE SHEET 11  
MATCH LINE

5' WIDE X 20' LONG 2" DEEP RIP-RAP CHANNEL FACILITATE INFILTRATION DURING WINTER MONTHS (TYP)

50' WIDE OVERFLOW WEIR #3  
SET LEVEL @ 220.0

TEST PIT #1

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TEST PIT #911

TEST PIT #912

TEST PIT #913











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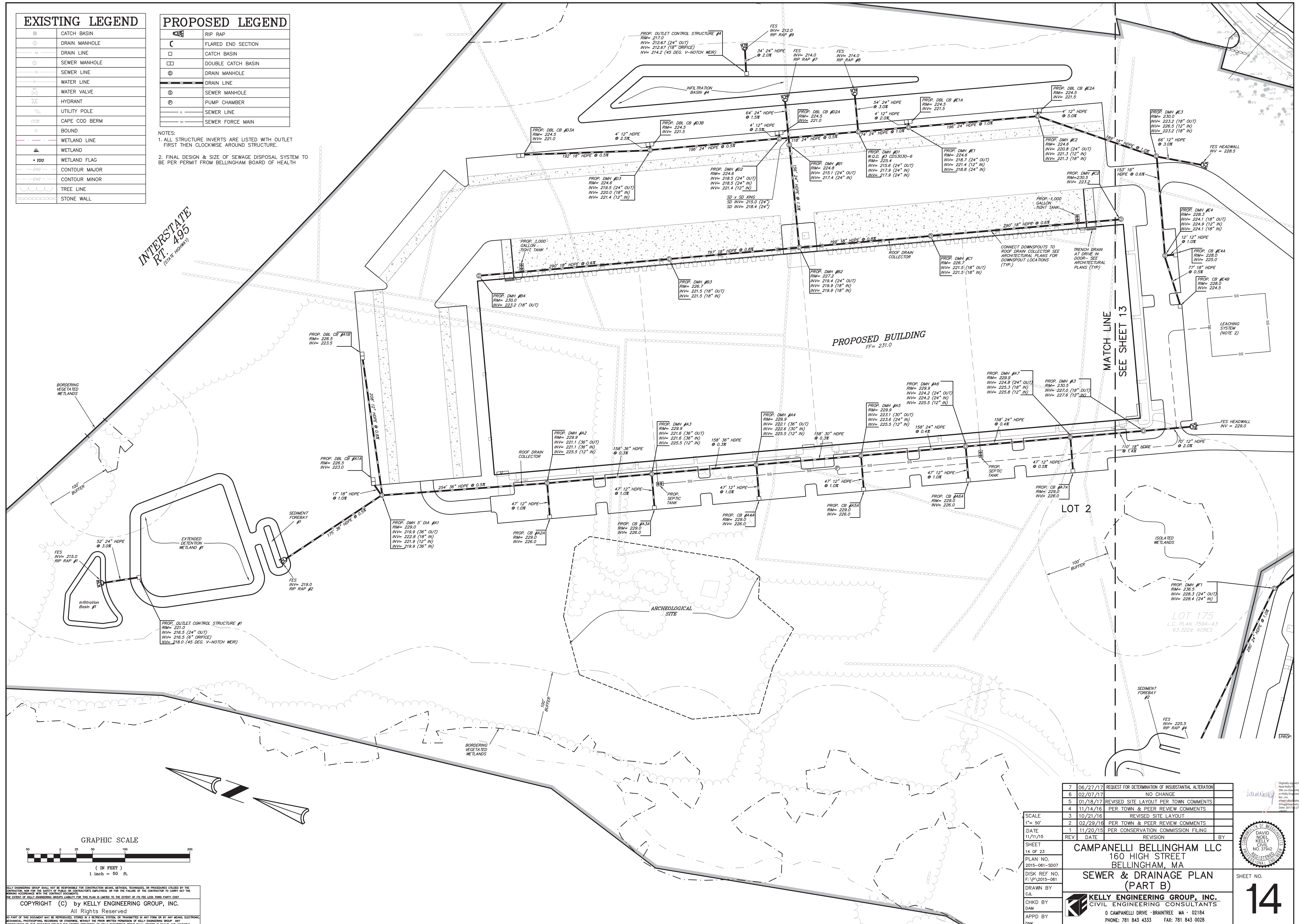






PROPOSED LEGEND	
	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	PUMP CHAMBER
	SEWER LINE
	SEWER FORCE MAIN

INTERSTATE  
RT. 495  
(STATE HIGHWAY)




	7	06/27/17	REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION	
	6	02/07/17	NO CHANGE	
	5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS	
	4	11/14/16	PER TOWN & PEER REVIEW COMMENTS	
	3	10/21/16	REVISED SITE LAYOUT	
	2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
	1	11/20/15	PER CONSERVATION COMMISSION FILING	
DATE	REV	DATE	REVISION	BY
11/17/15				
SHEET				
14 OF 23				
PLAN NO.				
2015-061-SD07				
DISK REF. NO.				
F:\P\2015-061				
DRAWN BY				
C.L.				
CHKD BY				
DAM				
APPD BY				
RNK				

## CAMPANELLI BELLINGHAM LLC

### 160 HIGH STREET BELLINGHAM, MA

# SEWER & DRAINAGE PLAN

## (PART B)



**KELLEY ENGINEERING GROUP, INC.**

CIVIL ENGINEERING CONSULTANTS

O CAMPANELLI DRIVE • BRAINTREE MA • 02184

PHONE: 781 843 4333 FAX: 781 843 0028

Digitally signed by David Noel Kelly  
DN: cn=Dave Noel Kelly, P, email=DavidNoelKelly@engr.com, o=David Noel Kelly Engineering Group, ou=David Noel Kelly Engineering Group, c=US  
Date: 2017.10.07 15:00:39

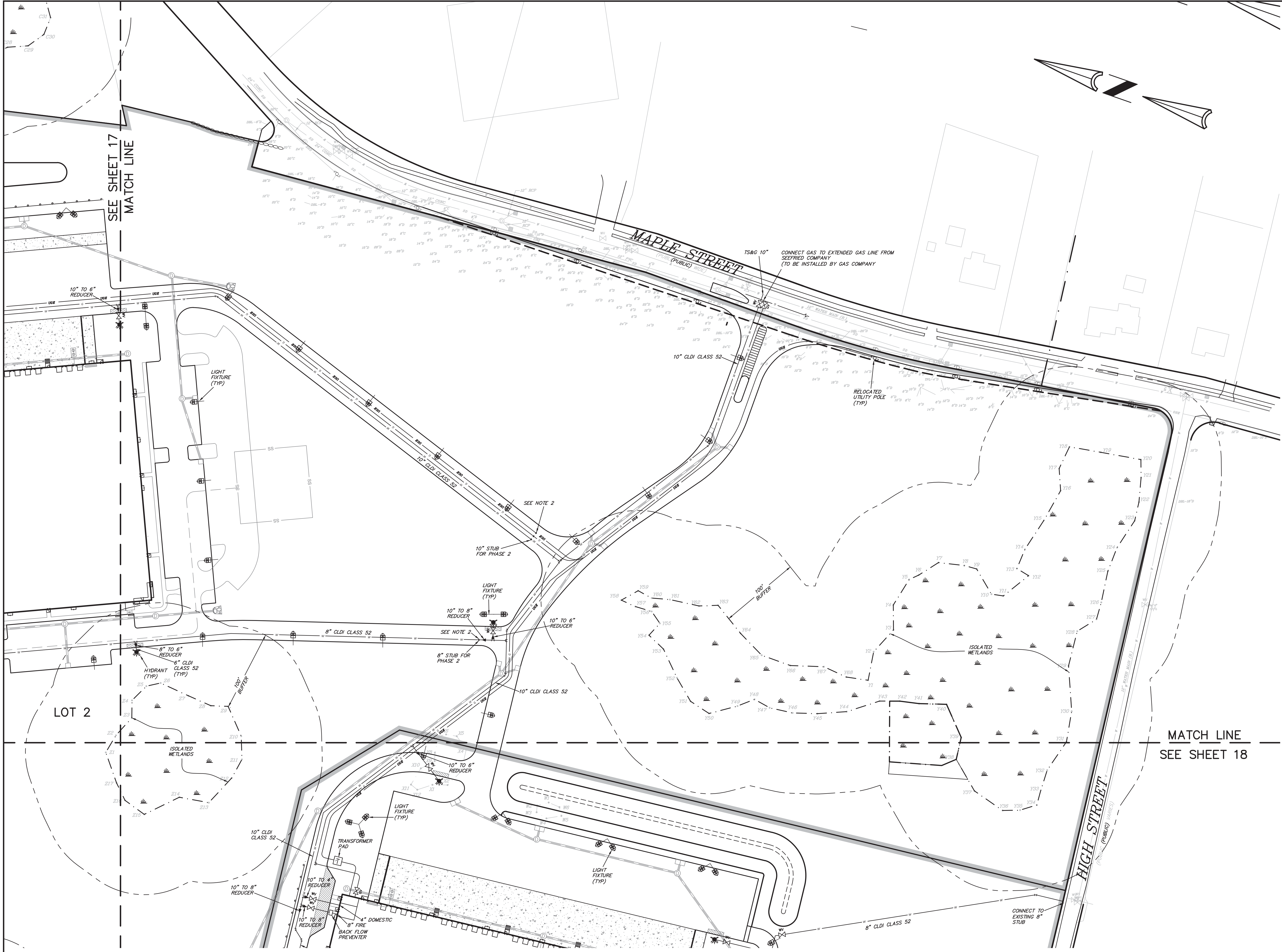
DAVID NOEL KELLY  
CIVIL  
NO. 37942  
REGISTERED STATE OF MASSACHUSETTS  
EXPIRES 12/31/2018

SHEET NO. 14









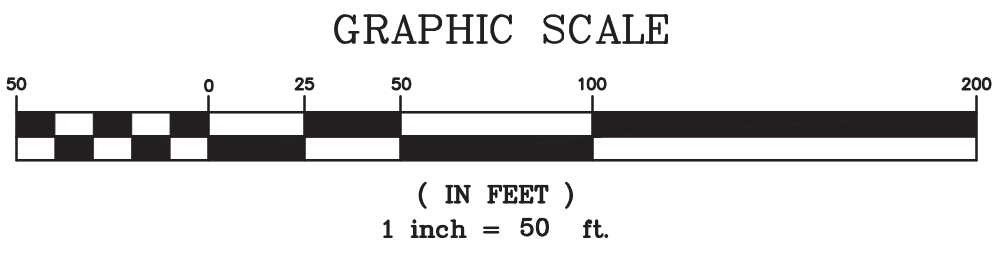
EXISTING LEGEND

	CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	WATER LINE
	WATER VALVE
	HYDRANT
	UTILITY POLE
	CAPE COD BERM
	BOUND
	WETLAND LINE
	WETLAND
	WETLAND FLAG
	CONTOUR MAJOR
	CONTOUR MINOR
	TREE LINE
	STONE WALL

PROPOSED LEGEND

	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	GAS VALVE
	GAS LINE
	HYDRANT
	WATER VALVE
	WATER LINE
	UTILITY POLE
	TRANSFORMER
	UNDERGROUND ELECTRIC LINE
	LIGHT FIXTURES

NOTES:  
1. FINAL WATER MAIN SIZES TO BE DETERMINED BY FLOW TEST, FIRE NEEDS & COORDINATION WITH FIRE AND WATER DEPARTMENTS.  
2. STUB UTILITIES BEYOND PHASE LINE & MARK



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7	06/27/17	REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION	
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3	10/21/16	REVISED SITE LAYOUT	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY

SCALE  
1"= 50'  
DATE  
11/11/15  
SHEET  
16 OF 23  
PLAN NO.  
2015-061-UT07  
DISK REF NO.  
F:\P\2015-061  
DRAWN BY  
C.J.L.  
CHKD BY  
DAM  
APPD BY  
DNK

**CAMPANELLI BELLINGHAM LLC**  
160 HIGH STREET  
BELLINGHAM, MA  
**UTILITY PLAN  
(PART A)**

**KELLY ENGINEERING GROUP, INC.**  
CIVIL ENGINEERING CONSULTANTS  
0 CAMPANELLI DRIVE · BRAINTREE, MA · 02184  
PHONE: 781 843 4333 FAX: 781 843 0028

Digitally signed by David Noel Kelly P.E., on 11/11/2015 15:08:50  
David Noel Kelly P.E.,  
on 11/11/2015 15:08:50  
inc. the  
signature  
04107

DAVID NOEL KELLY  
CIVIL  
NO. 37942  
REGD./STRECH  
PROFESSIONAL ENGINEER

SHEET NO.  
**16**



# EXISTING LEGEND

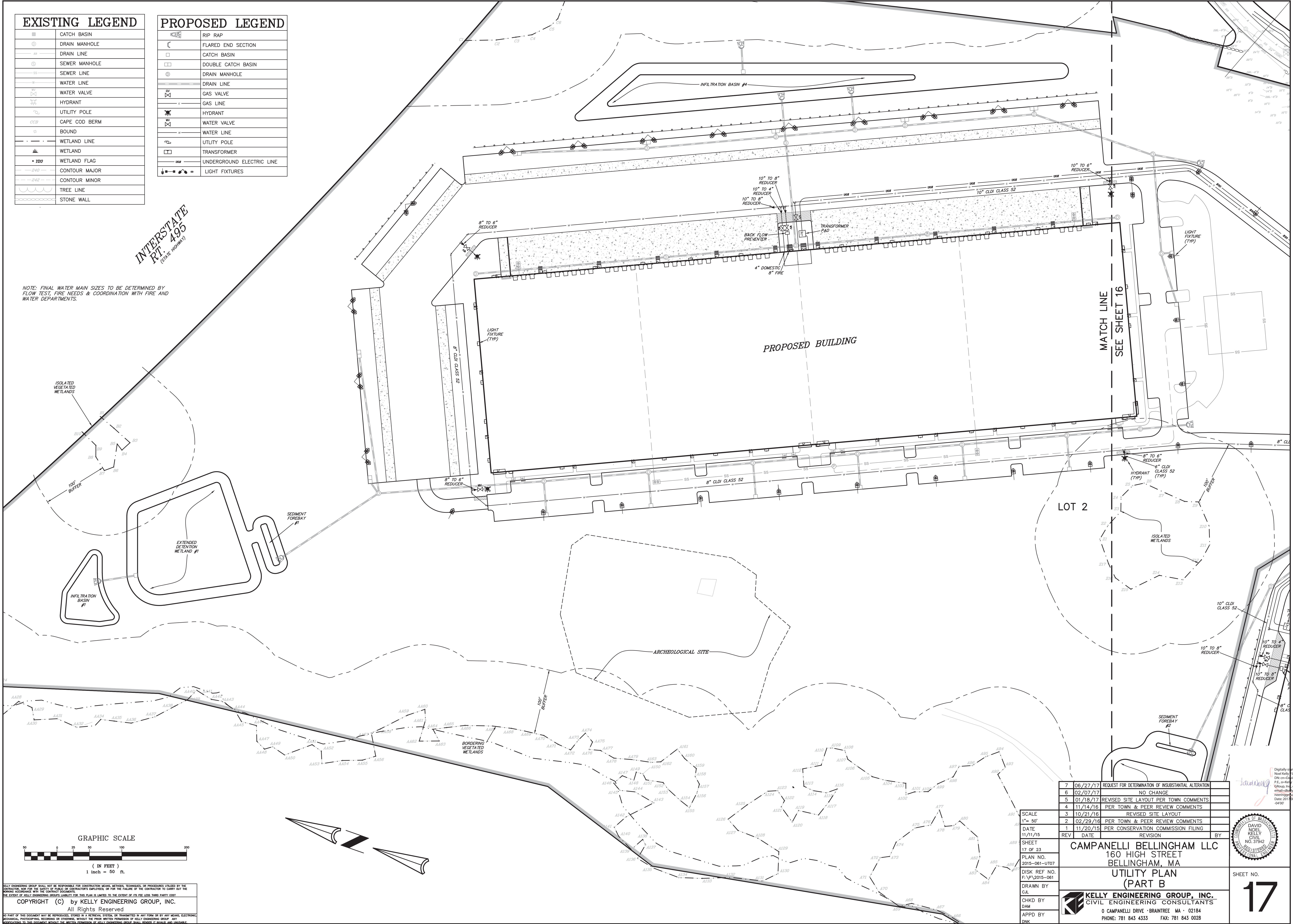
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	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	WATER LINE
	WATER VALVE
	HYDRANT
	UTILITY POLE
	CAPE COD BERM
	BOUND
	WETLAND LINE
	WETLAND
	WETLAND FLAG
	CONTOUR MAJOR
	CONTOUR MINOR
	TREE LINE
	STONE WALL

# PROPOSED LEGEND

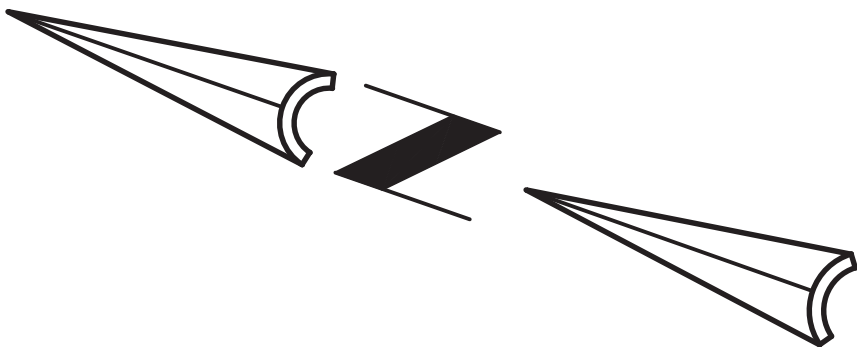
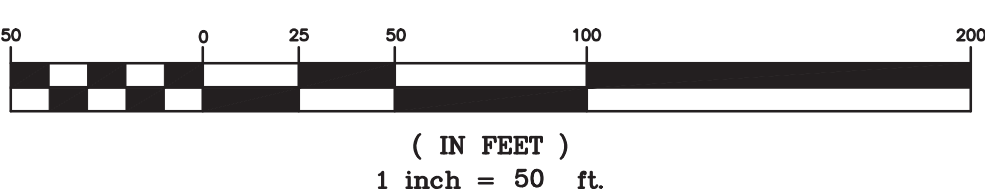
	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	GAS VALVE
	GAS LINE
	HYDRANT
	WATER VALVE
	WATER LINE
	UTILITY POLE
	TRANSFORMER
	UNDERGROUND ELECTRIC LINE
	LIGHT FIXTURES

INTERSTATE  
RT 495  
(STATE HIGHWAY)

NOTE: FINAL WATER MAIN SIZES TO BE DETERMINED BY  
FLOW TEST, FIRE NEEDS & COORDINATION WITH FIRE AND  
WATER DEPARTMENTS.



GRAPHIC SCALE



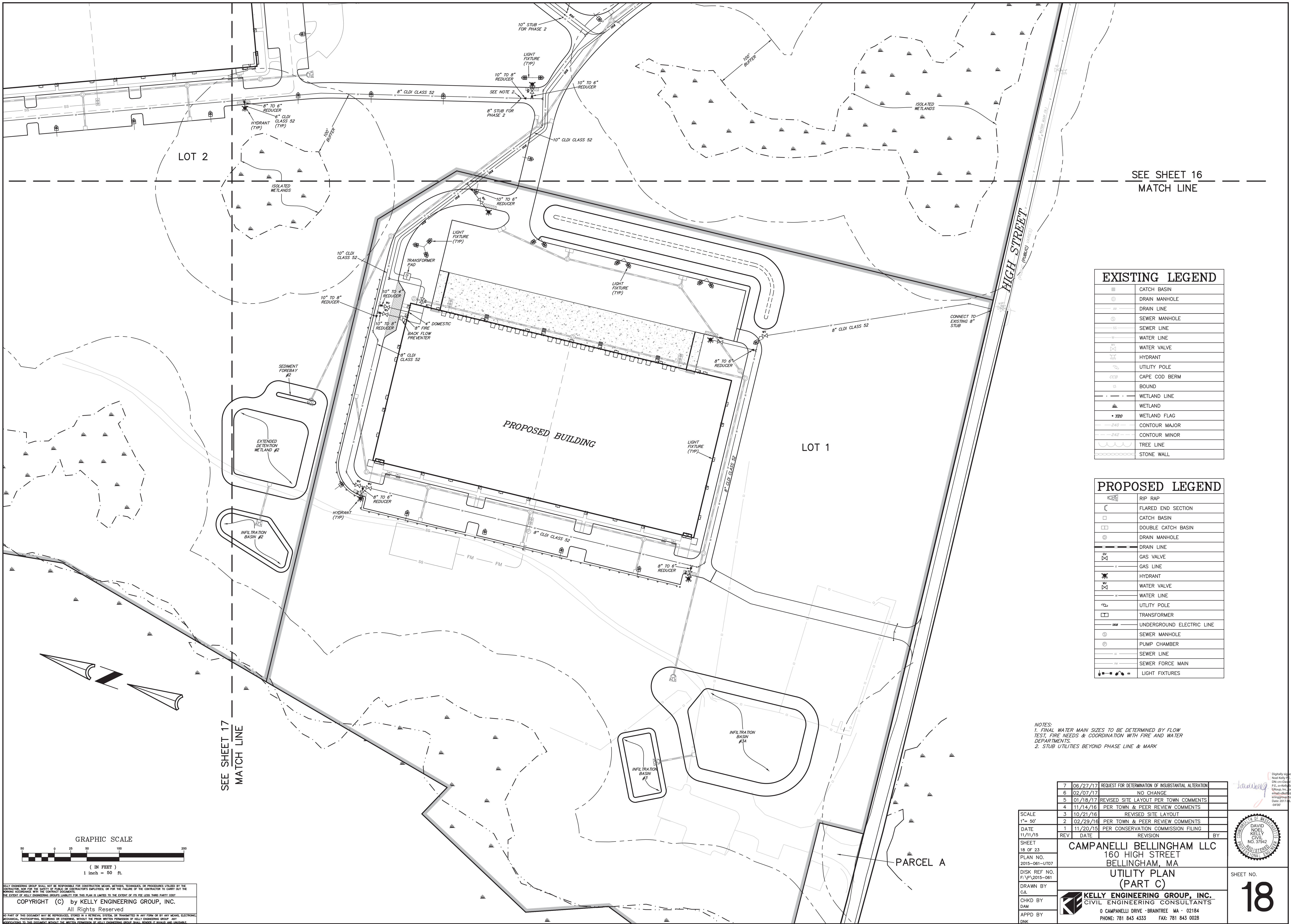
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CONTRACTOR, NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE  
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7	06/27/17	REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION	
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5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS	
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3	10/21/16	REVISED SITE LAYOUT	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	PER CONSERVATION COMMISSION FILING	
REV	DATE	REVISION	BY
SHEET 17 OF 23			
PLAN NO. 2015-061-UT07			
DISK REF NO. F:\P\2015-061			
DRAWN BY C.J.L.			
CHKD BY DAM			
APPD BY D.N.K.			
CAMPANELLI BELLINGHAM LLC 160 HIGH STREET BELLINGHAM, MA UTILITY PLAN (PART B)			
KELLY ENGINEERING GROUP, INC. CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAINTREE, MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028			

Digitally signed by David Noel Kelly, EIT  
DN: cn=David Noel Kelly, EIT, o=Kelly Engineering Group, Inc., email=dkelly@kellyeng.com, c=US  
Date: 2016.06.27 15:05:05 -0400

SHEET NO. 17



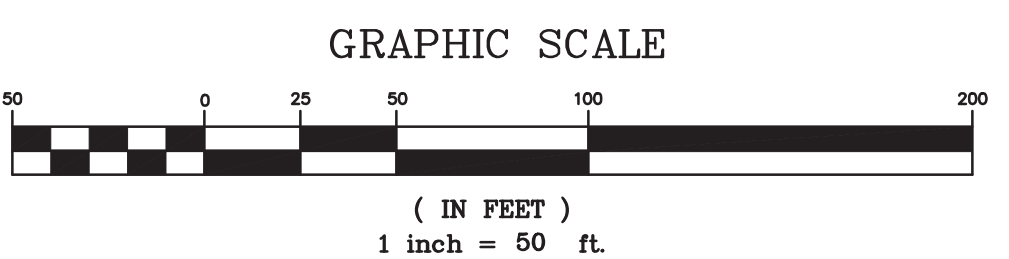


SEE SHEET 16  
MATCH LINE

EXISTING LEGEND	
	CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	SEWER MANHOLE
	SEWER LINE
	WATER LINE
	WATER VALVE
	HYDRANT
	UTILITY POLE
	CAPE COD BERM
	BOUND
	WETLAND LINE
	WETLAND FLAG
	CONTOUR MAJOR
	CONTOUR MINOR
	TREE LINE
	STONE WALL

PROPOSED LEGEND	
	RIP RAP
	FLARED END SECTION
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	DRAIN LINE
	GAS VALVE
	GAS LINE
	HYDRANT
	WATER VALVE
	WATER LINE
	UTILITY POLE
	TRANSFORMER
	UNDERGROUND ELECTRIC LINE
	SEWER MANHOLE
	PUMP CHAMBER
	SEWER LINE
	SEWER FORCE MAIN
	LIGHT FIXTURES

NOTES:  
1. FINAL WATER MAIN SIZES TO BE DETERMINED BY FLOW  
TEST, FIRE NEEDS & COORDINATION WITH FIRE AND WATER  
DEPARTMENTS.  
2. STUB UTILITIES BEYOND PHASE LINE & MARK



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706/27/17REQUEST FOR DETERMINATION OF INSUBSTANTIAL ALTERATION

602/07/17NO CHANGE

501/18/17REVISED SITE LAYOUT PER TOWN COMMENTS

411/14/16PER TOWN & PEER REVIEW COMMENTS

310/21/16REVISED SITE LAYOUT

202/29/16PER TOWN & PEER REVIEW COMMENTS

111/11/15PER CONSERVATION COMMISSION FILING

REVDATEREVISIONBY

SHEET18 OF 23

PLAN NO.2015-061-UT07

DISK REF NO.F:\P\2015-061

DRAWN BYC.J.L.

CHKD BYDAM

APPD BYDNK

CAMPANELLI BELLINGHAM LLC

160 HIGH STREET

BELLINGHAM, MA

UTILITY PLAN

(PART C)

KELLY ENGINEERING GROUP, INC.

CIVIL ENGINEERING CONSULTANTS

0 CAMPANELLI DRIVE · BRAintree MA · 02184

PHONE: 781 843 4333 FAX: 781 843 0028

SHEET NO.

18

DAVID NOEL KELLY

CIVIL

NO. 37942

REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Noel Kelly

DN: cn=David Noel Kelly

c=US

email=dnk@kellyengr.com

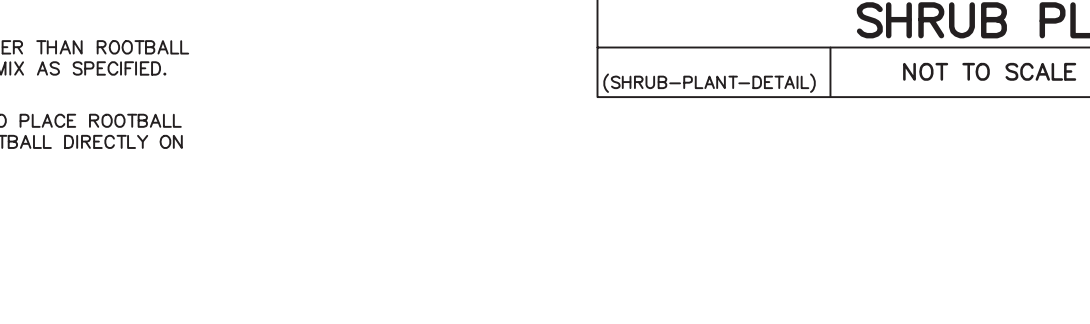
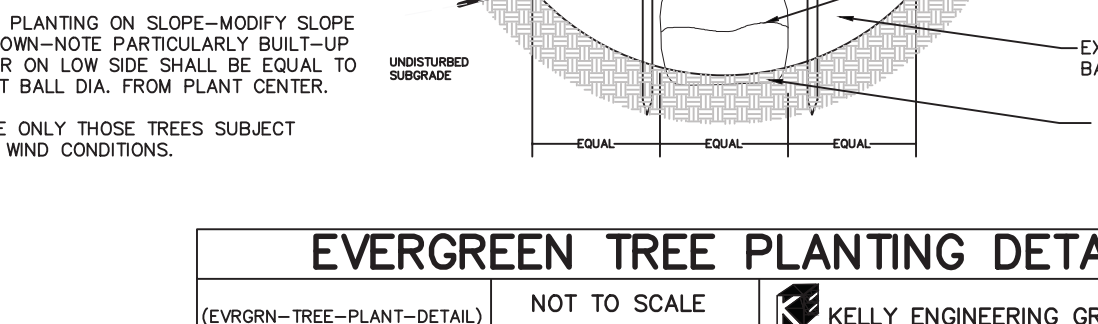
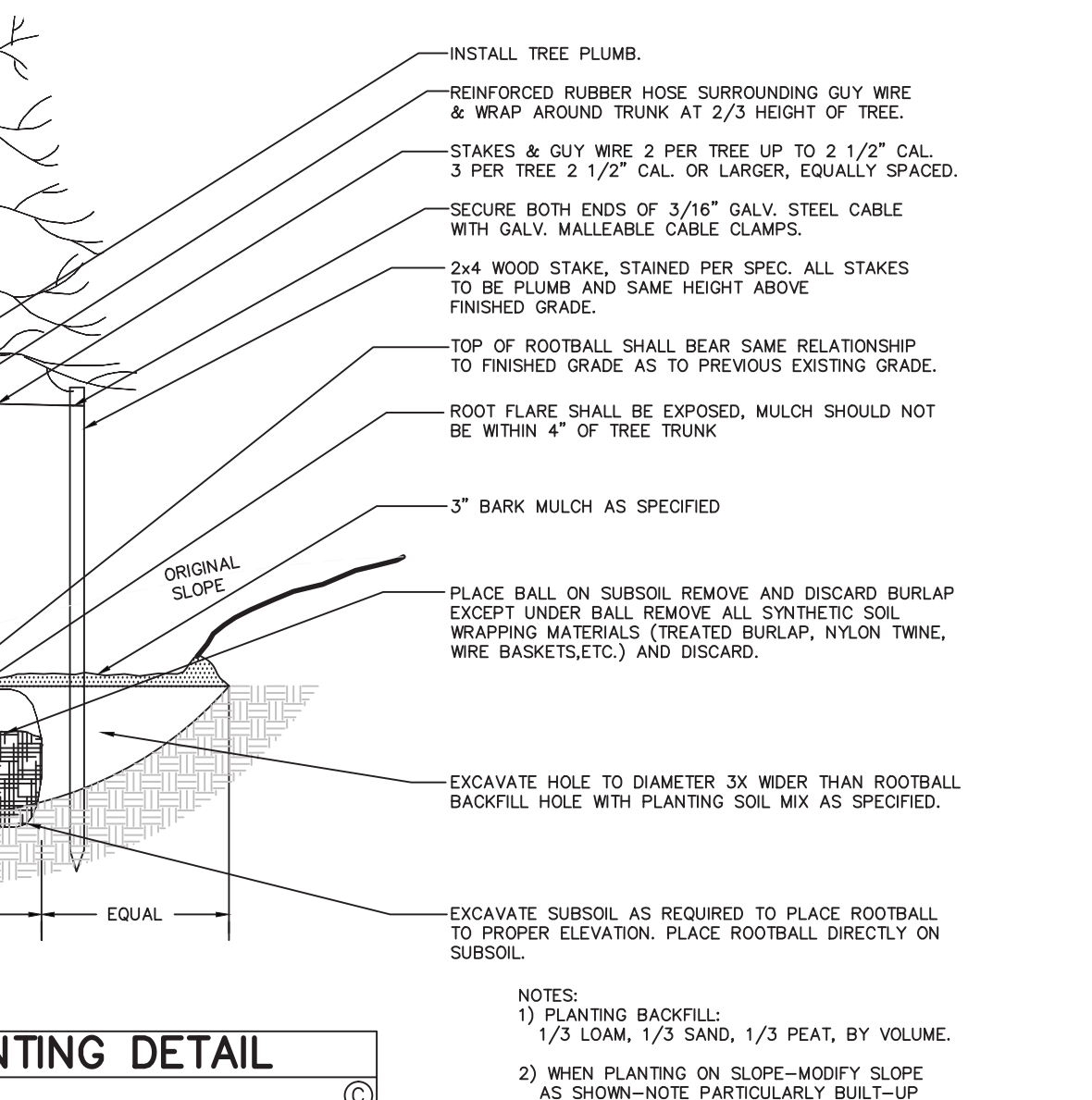
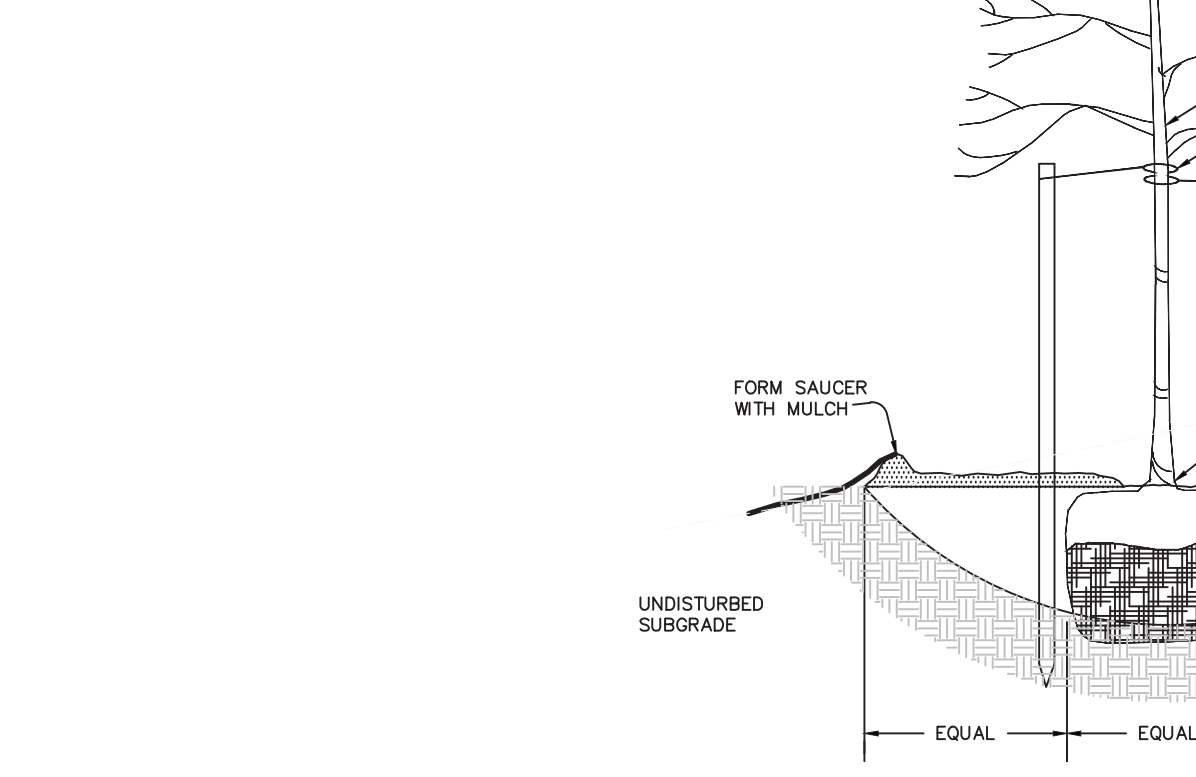
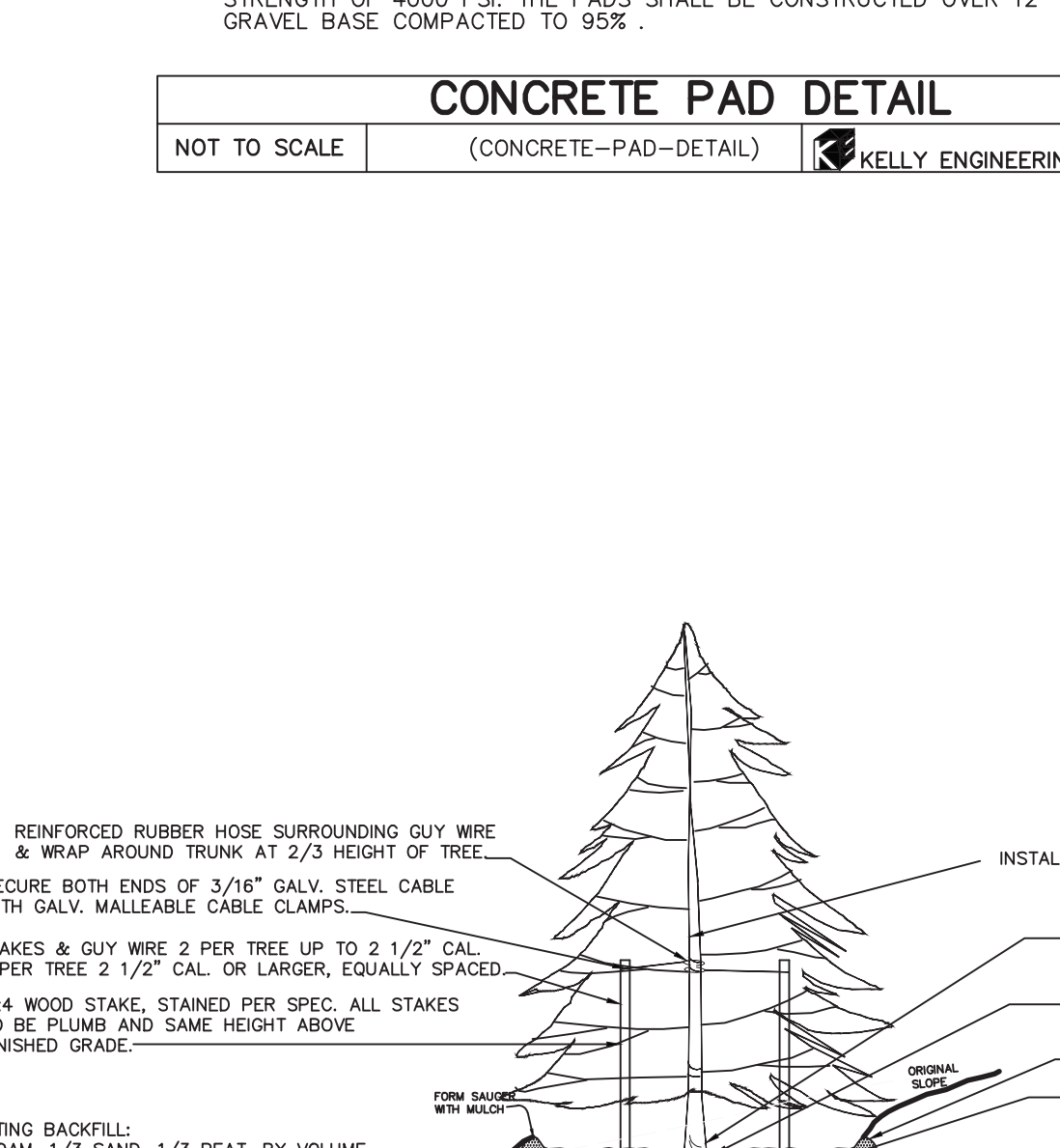
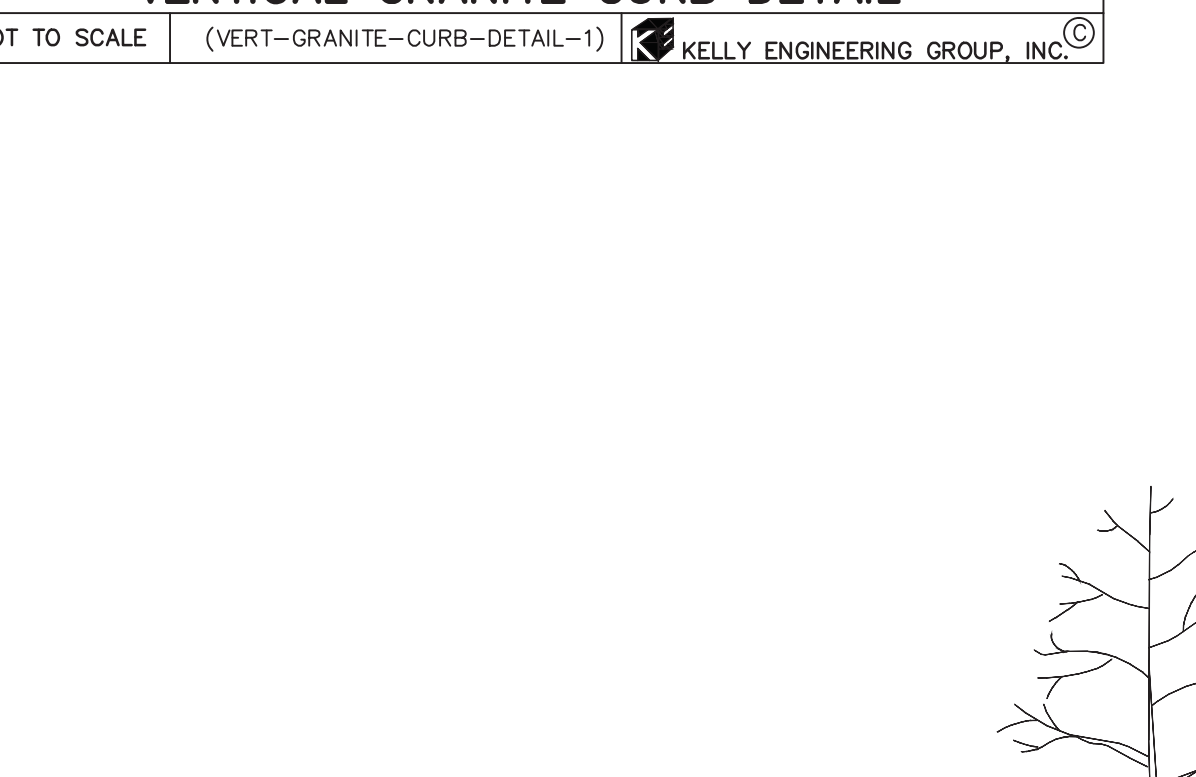
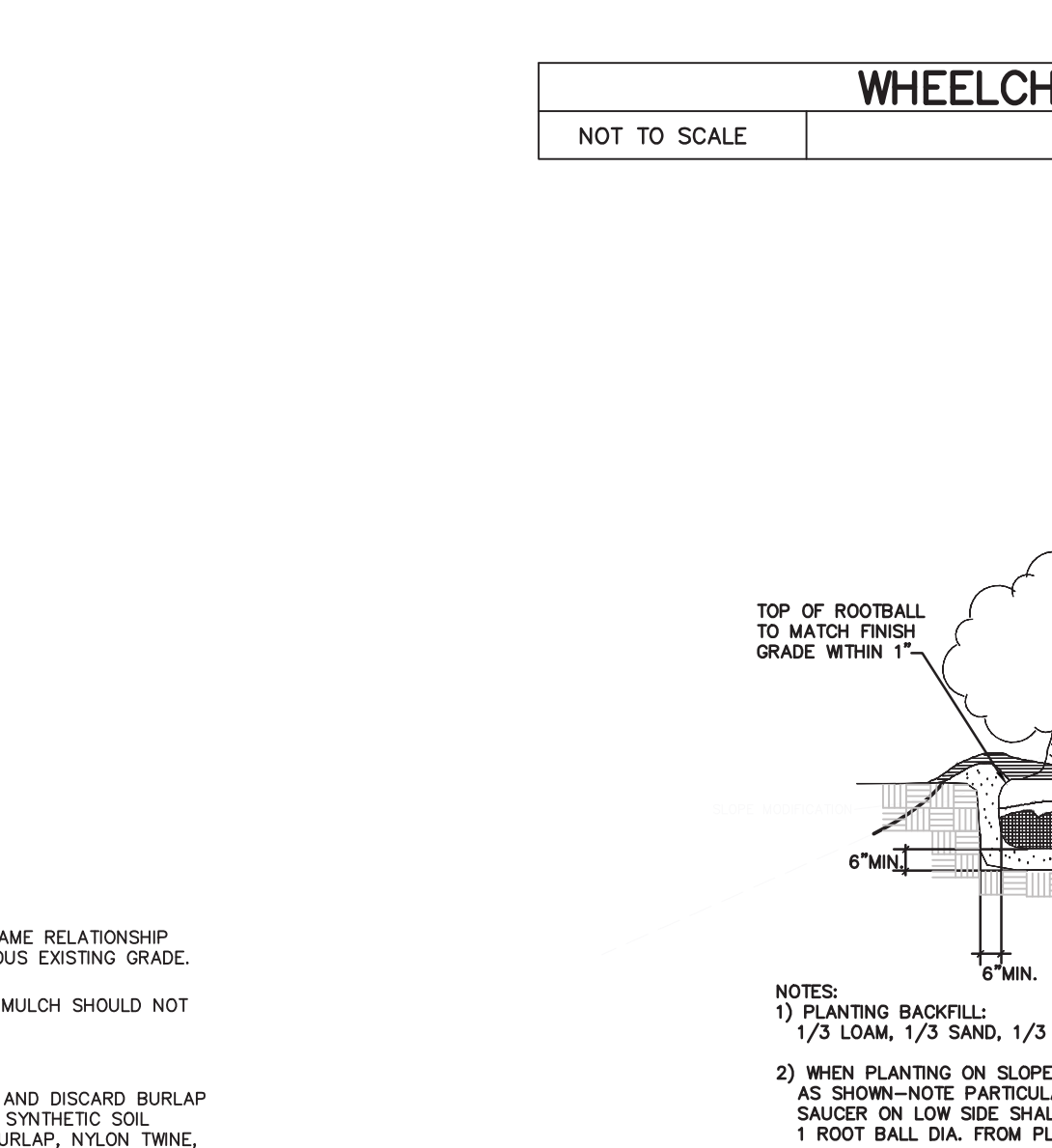
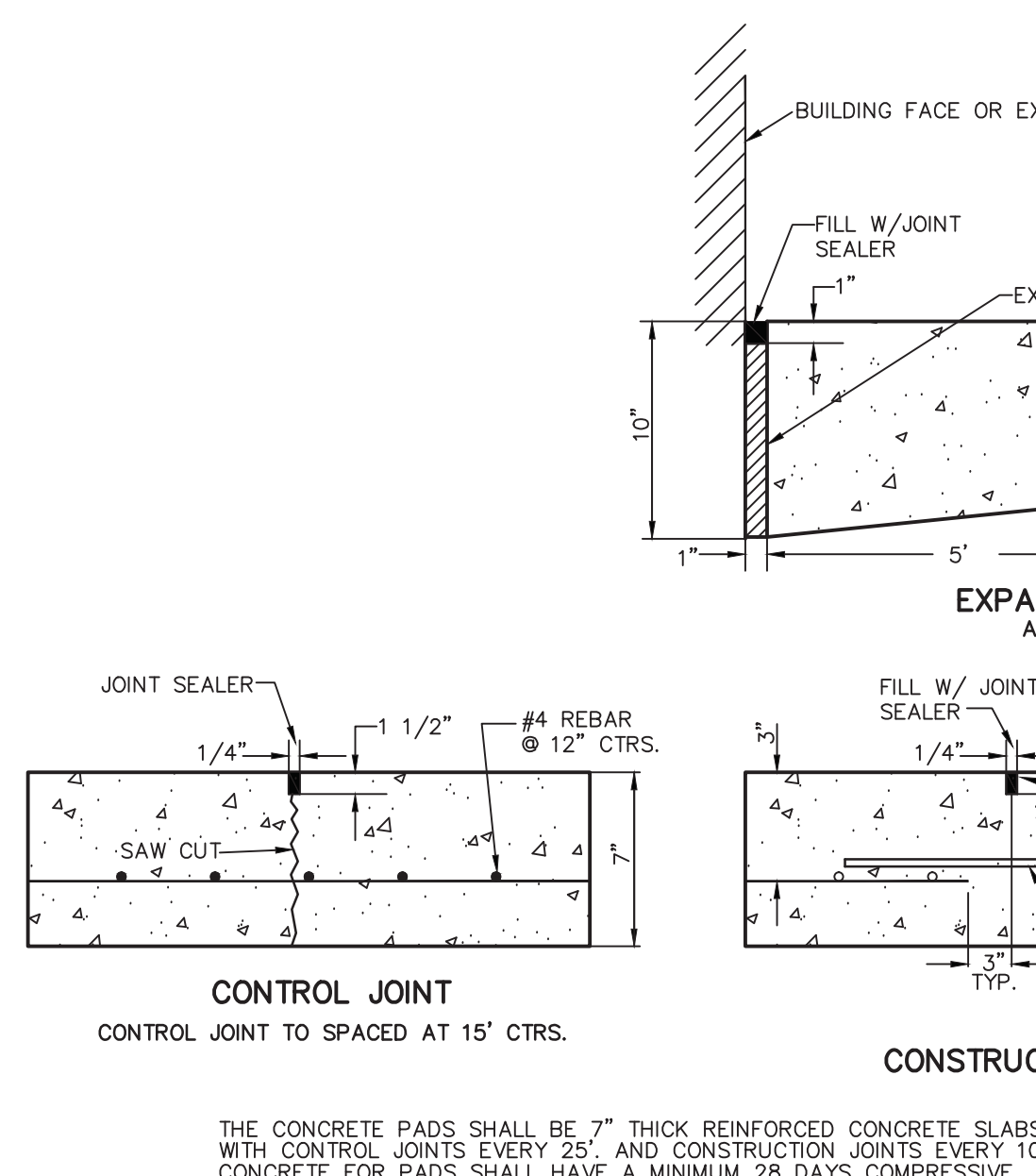
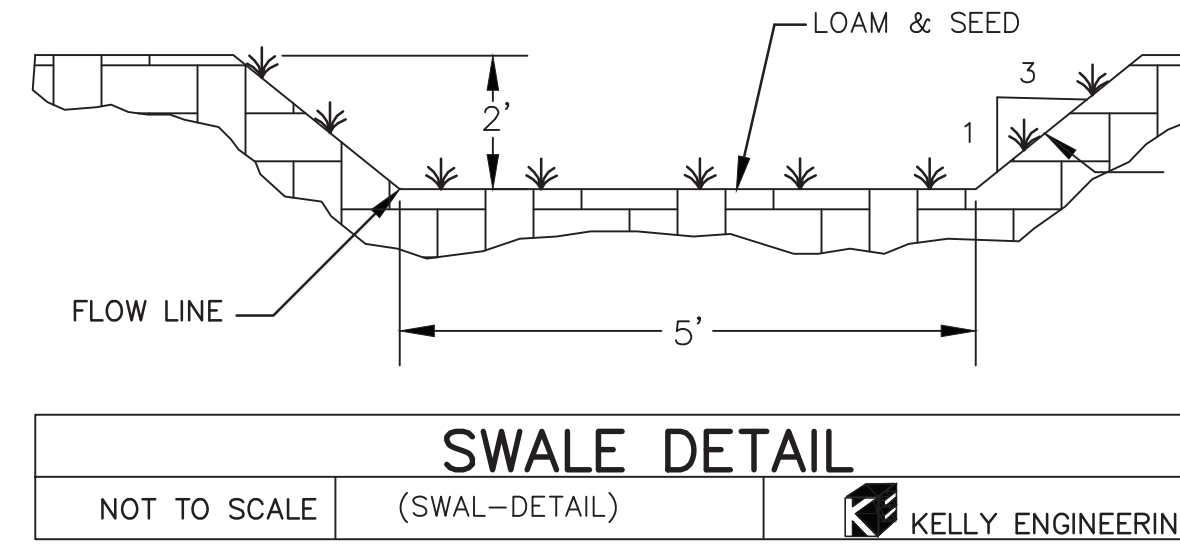
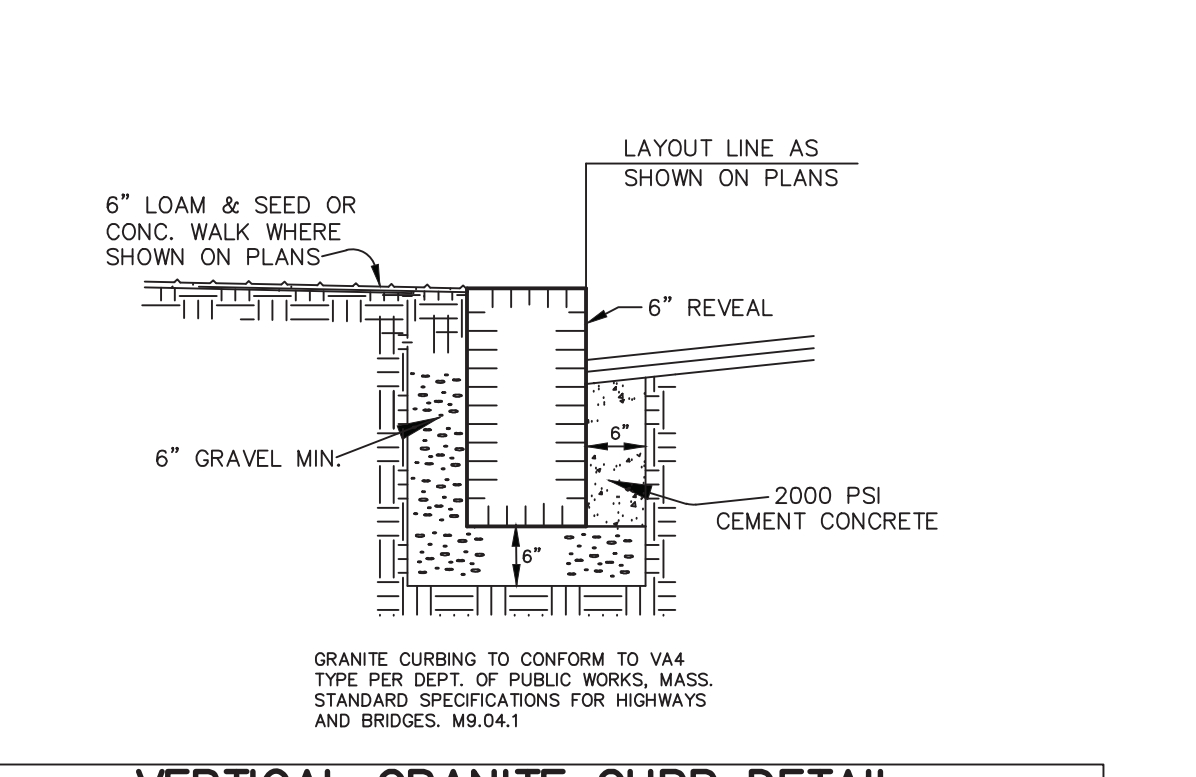
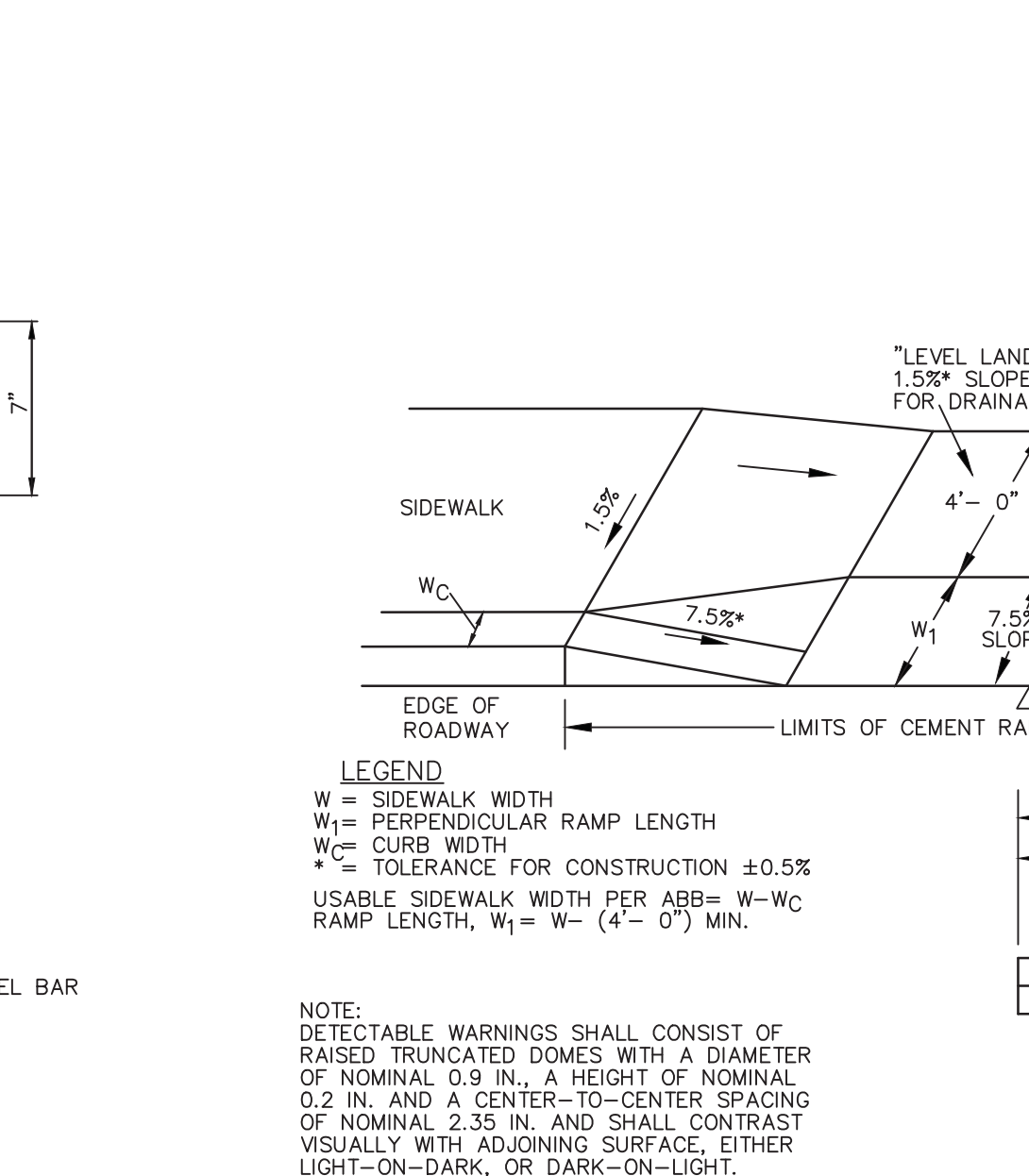
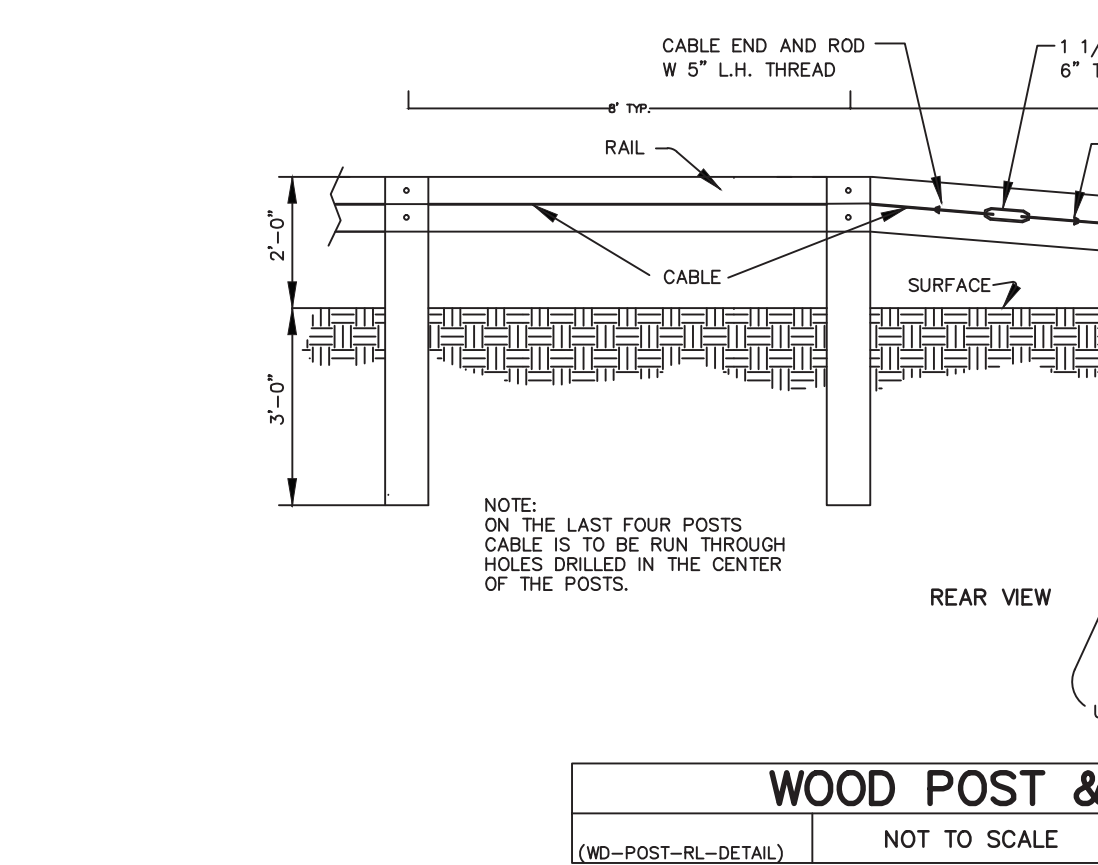
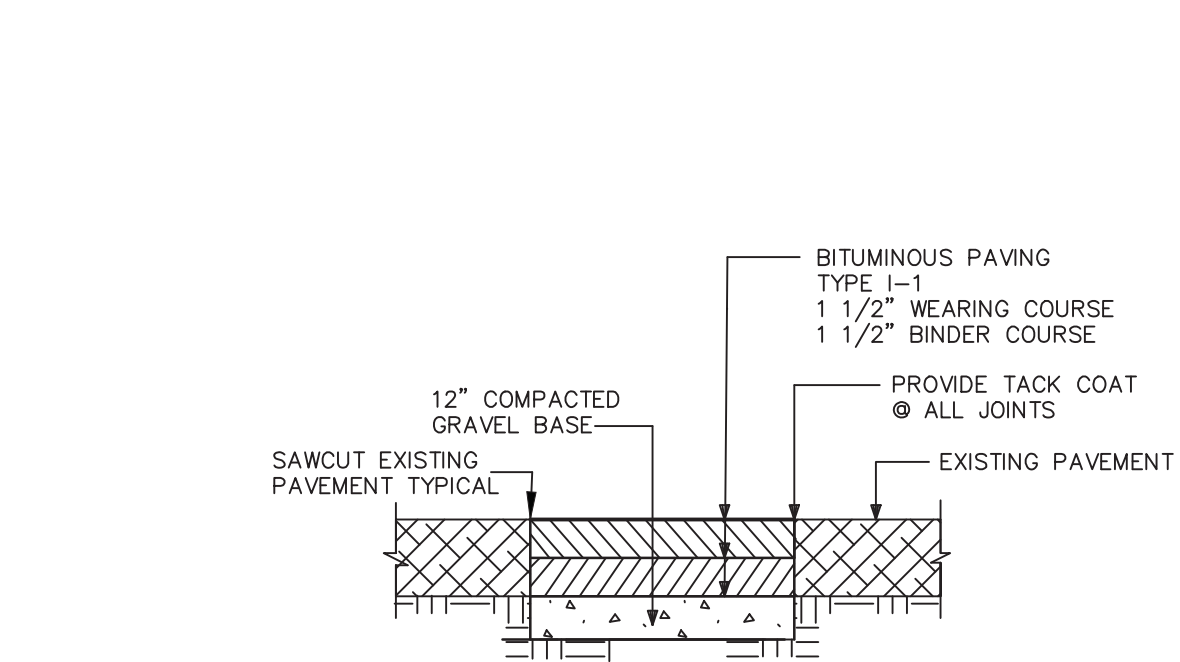
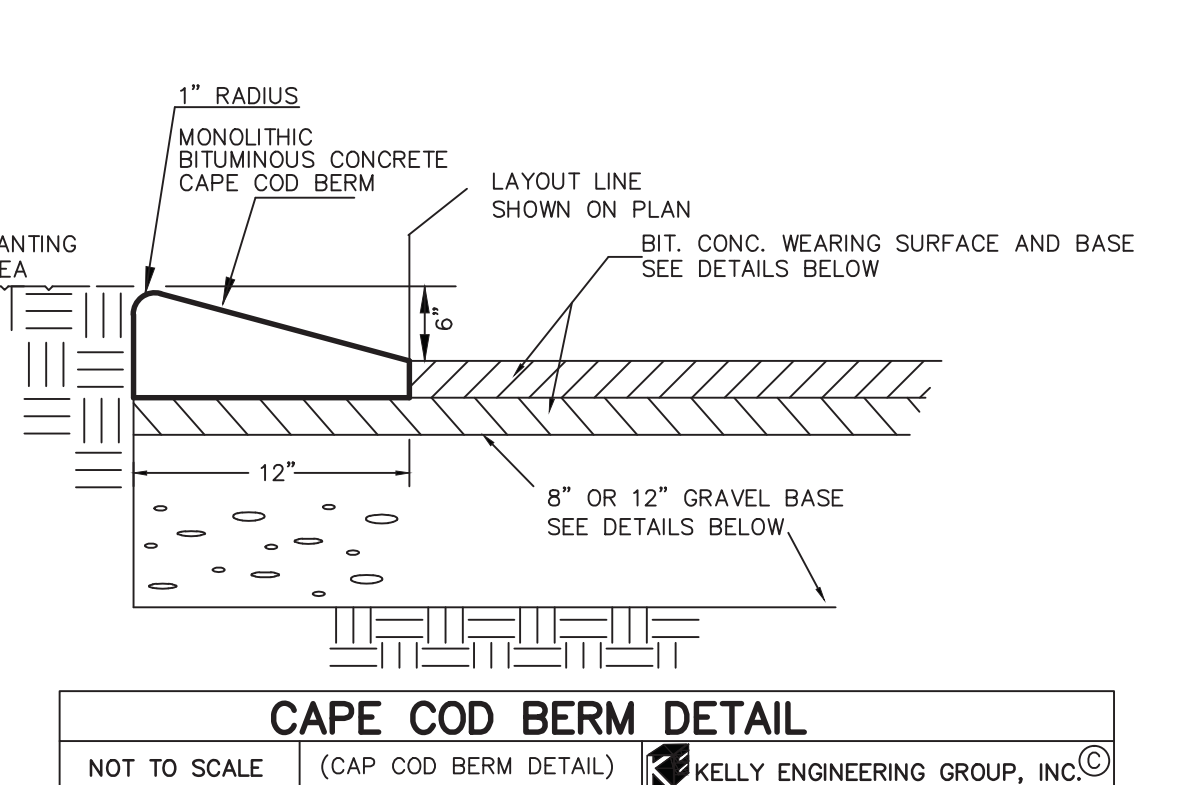
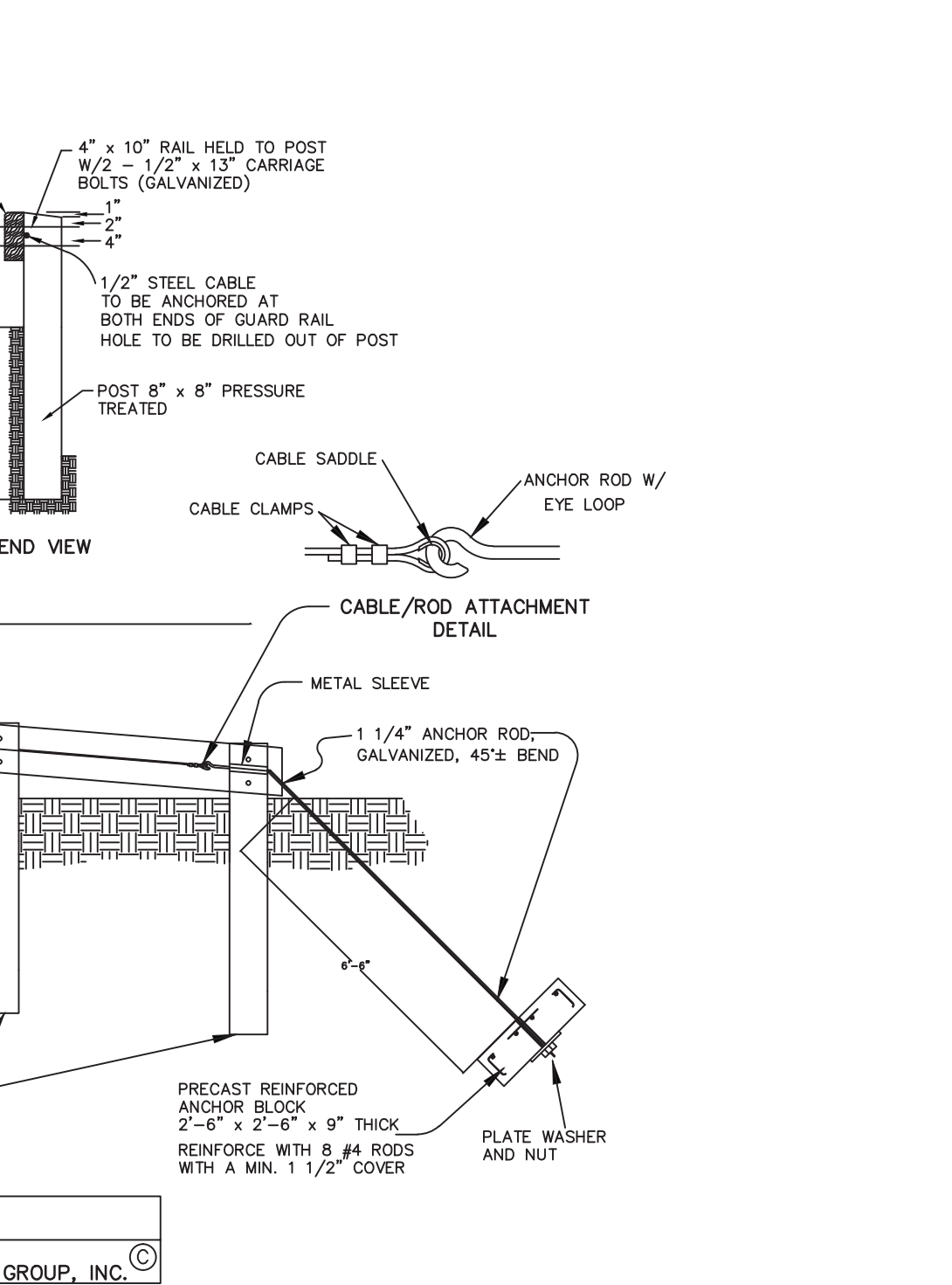
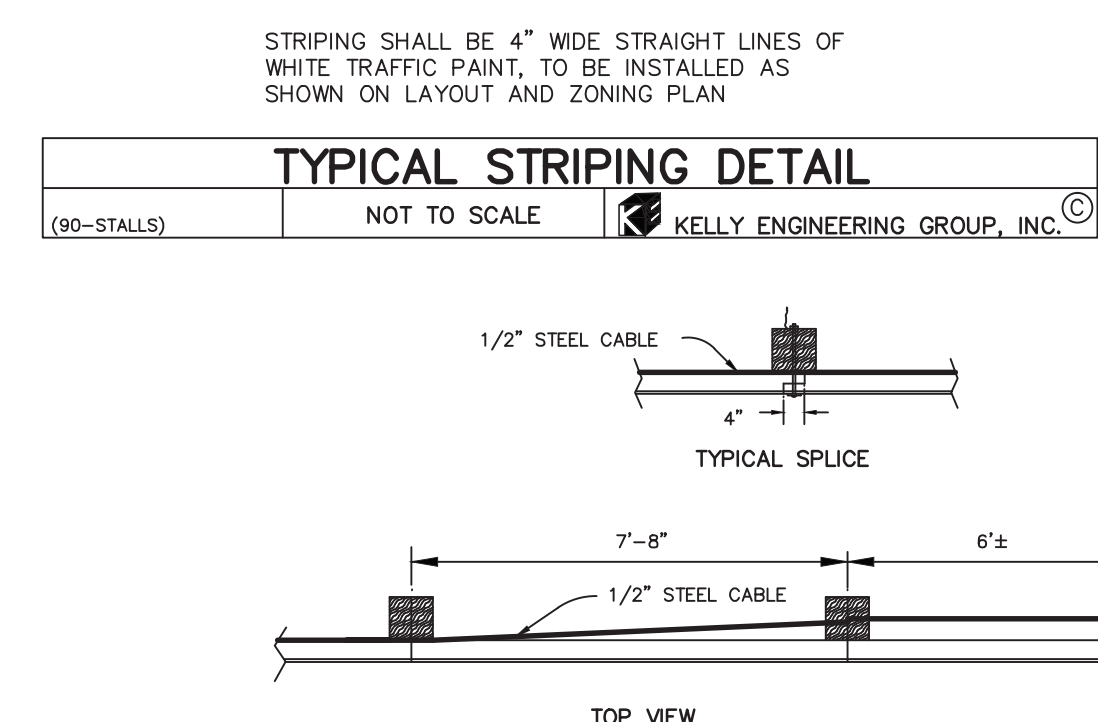
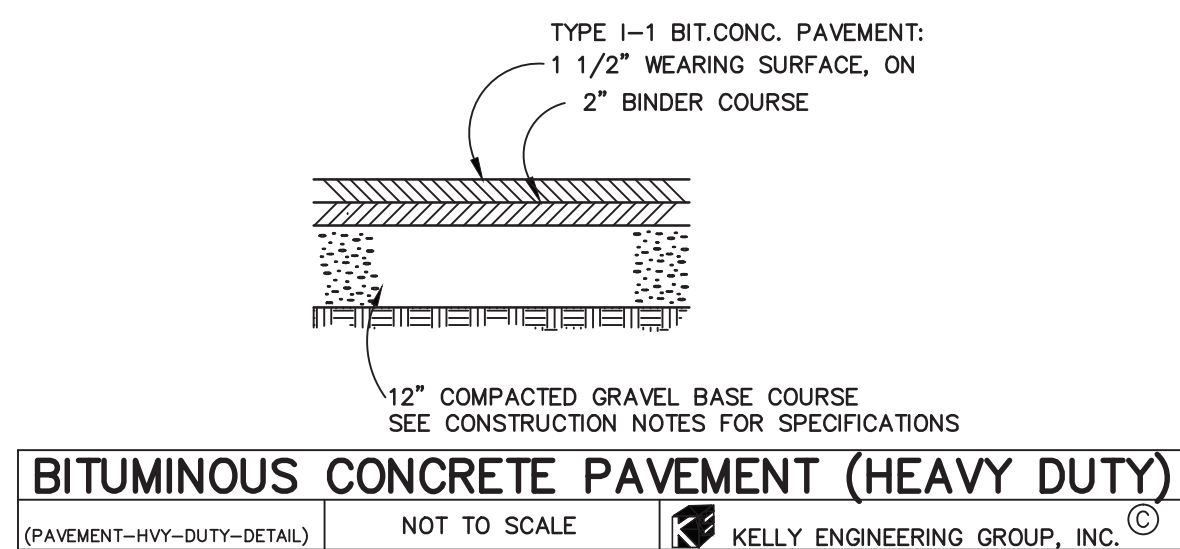
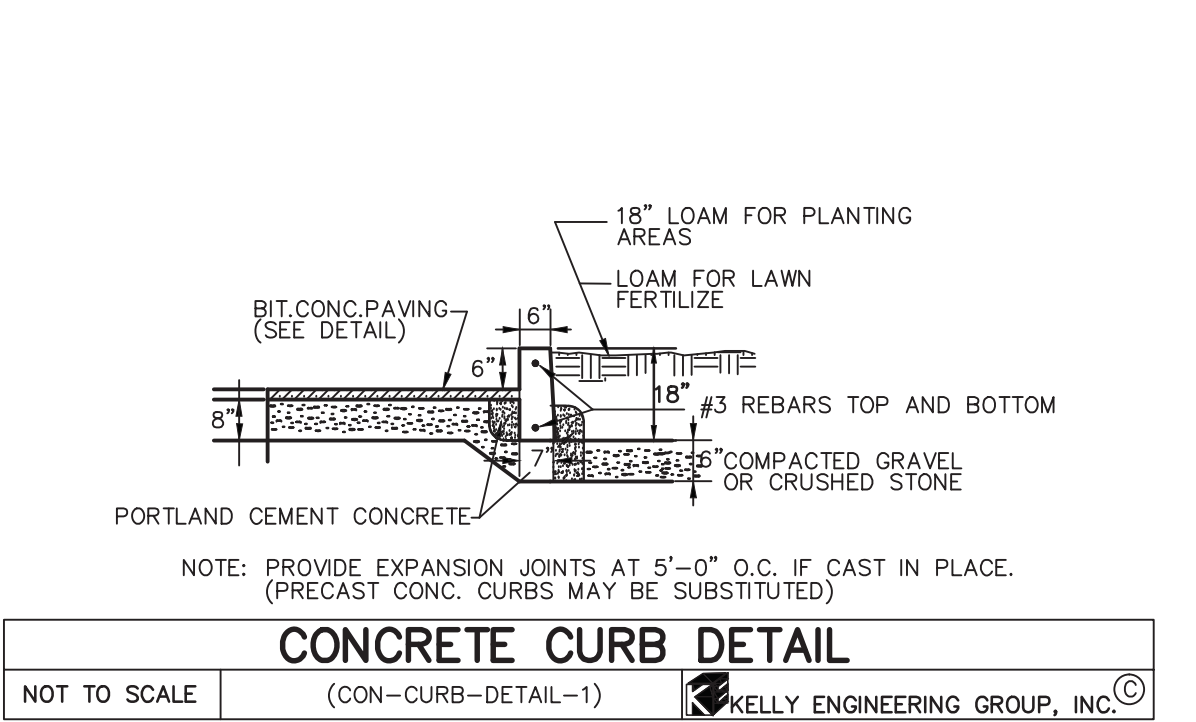
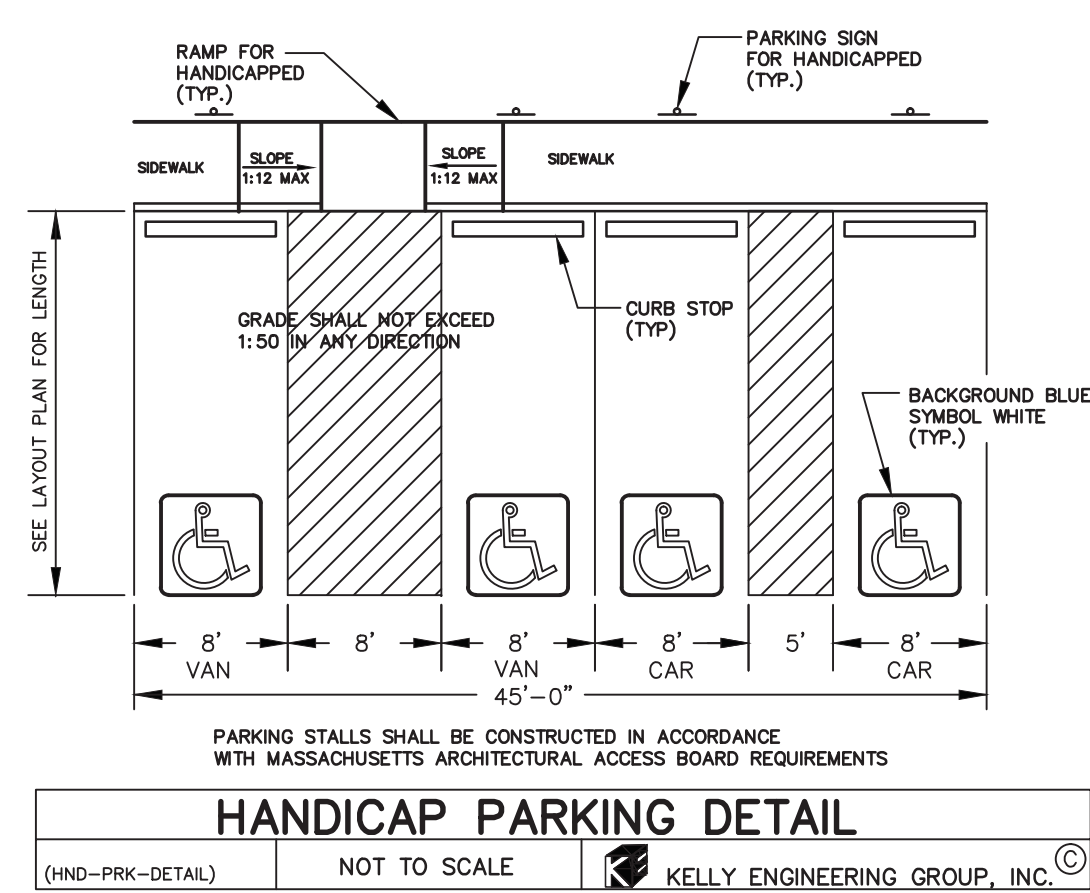
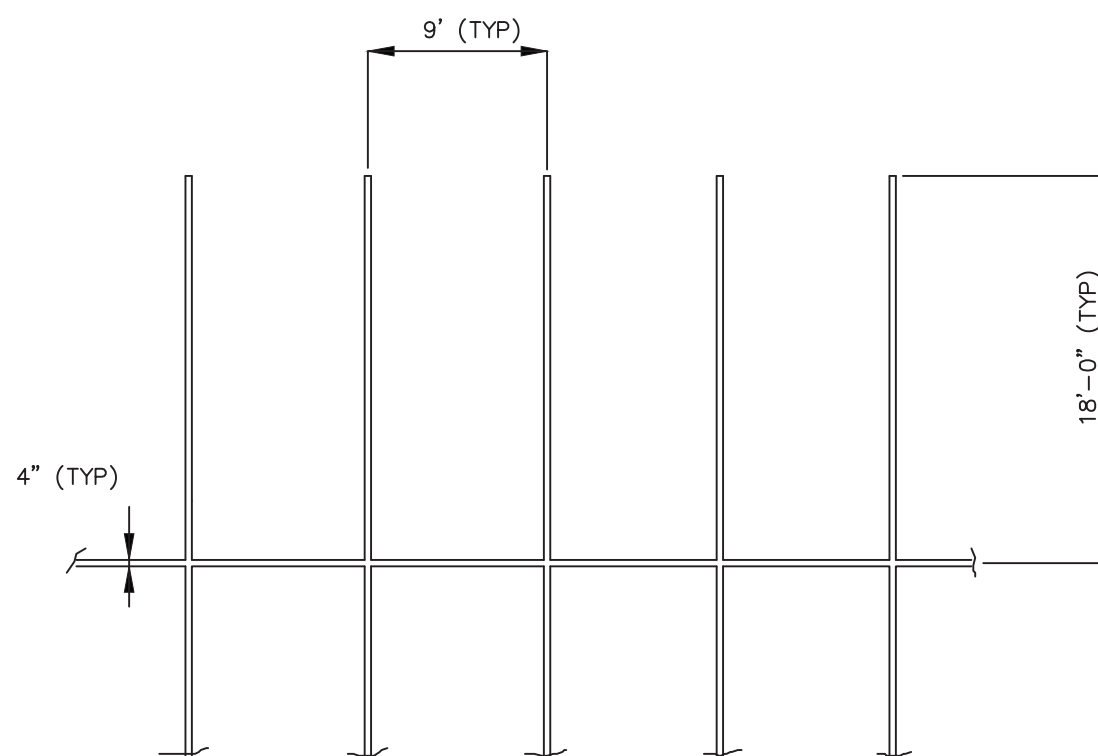
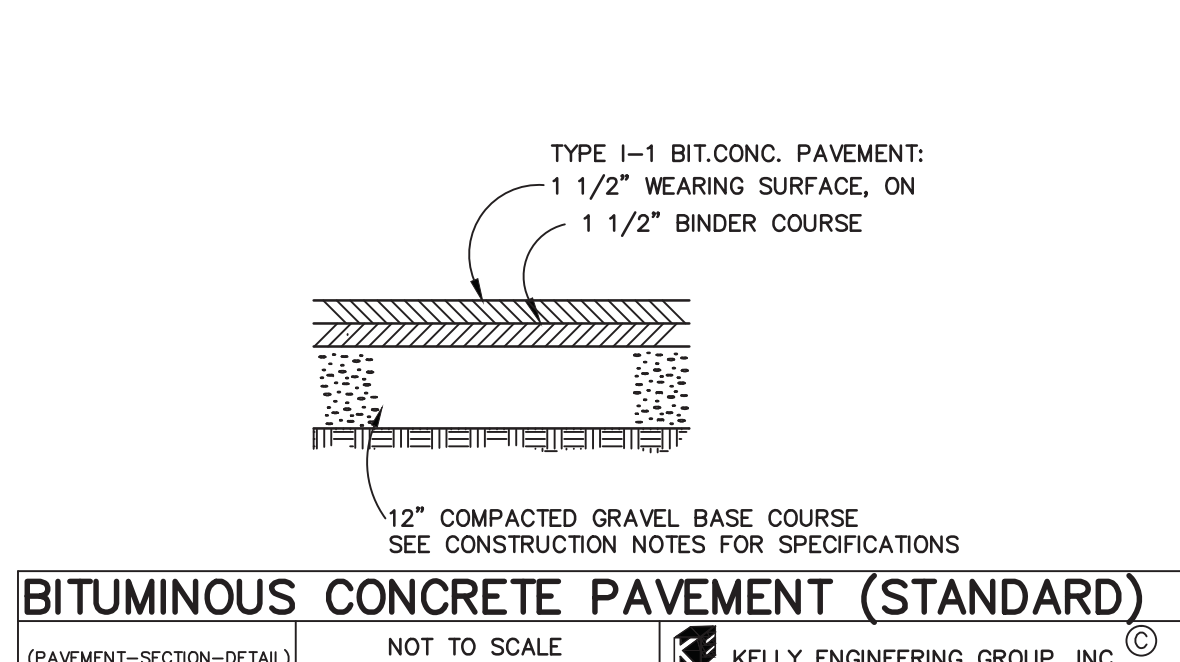
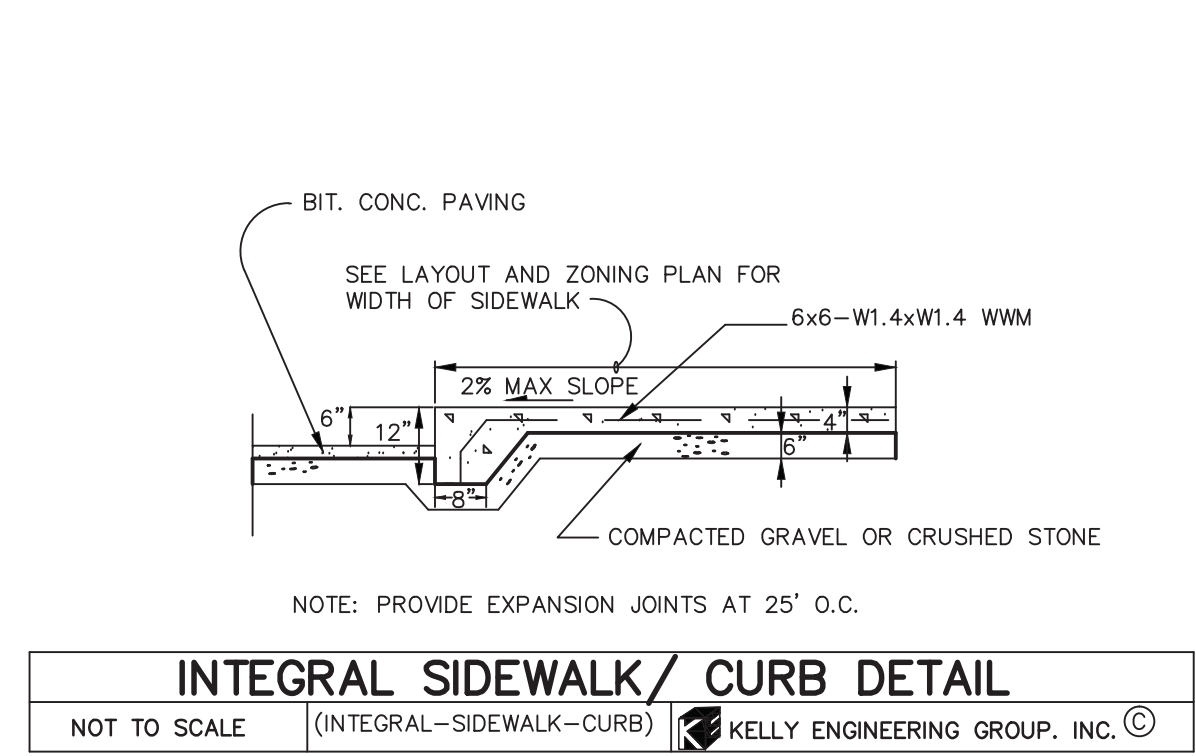
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ou=Engineering

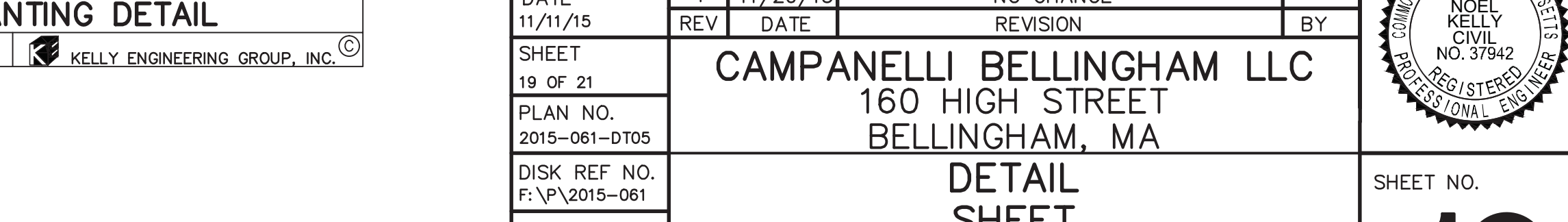
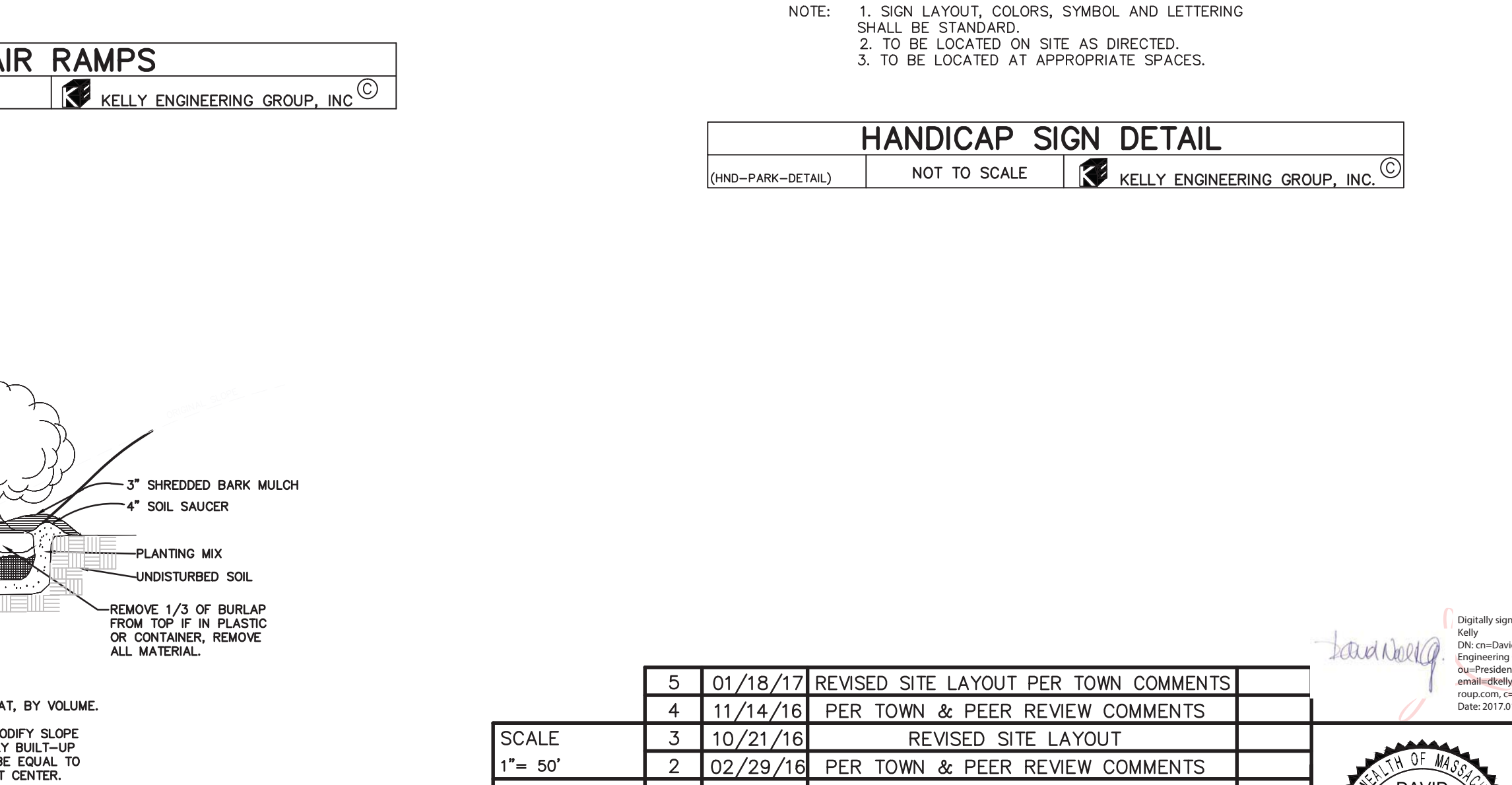
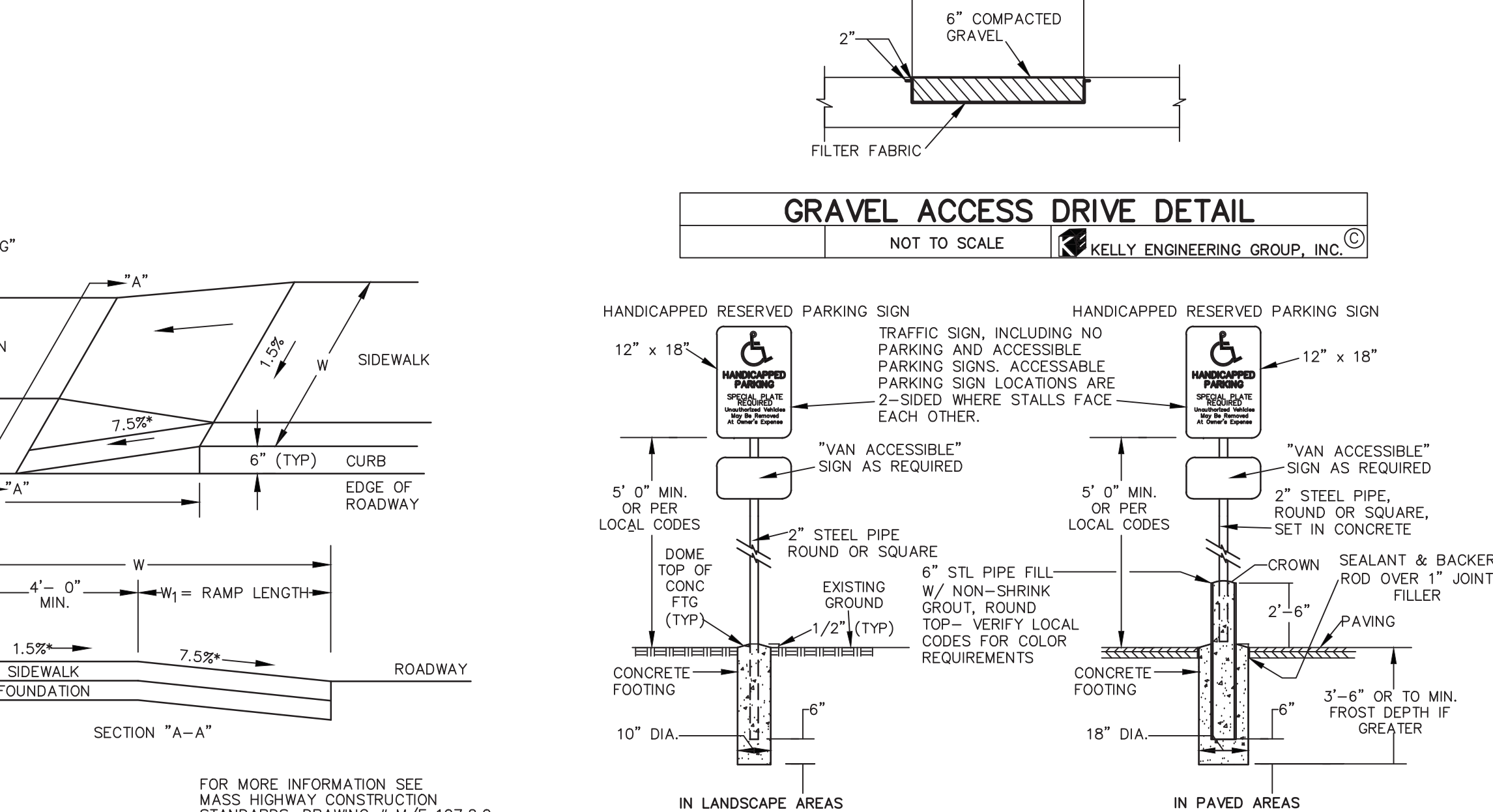
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+04'00'





- ### CONSTRUCTION NOTES
- 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.
  - THE CONTRACTOR SHALL NOTIFY THE TOWN OF BELLINGHAM DEPARTMENT OF PUBLIC WORKS AT LEAST 48 HOURS IN ADVANCE OF ANY REQUIRED INSPECTIONS.
  - 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.
  - ALL WORK SHALL CONFORM TO A SPECIAL PERMITS AND SITE PLAN APPROVALS TO BE ISSUED BY THE TOWN OF BELLINGHAM.
  - FOR ANY PROJECT THAT INVOLVES 1 ACRE OR MORE OF DISTURBANCE, CONTRACTOR SHALL SECURE A NPDES PERMIT PRIOR TO BEGINNING ANY GRADING ACTIVITIES.
  - ALL WORK SHALL CONFORM TO AN ORDER OF CONDITIONS TO BE ISSUED BY THE TOWN OF BELLINGHAM.
  - ALL WORK SHALL CONFORM TO THE GEOTECHNICAL REPORT.
  - 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.
  - THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO TAPPING INTO, CROSSING OR EXTENDING THEM. IF THE NEW WORK PASSES A CONFLICT WITH EXISTING UTILITIES, THE ENGINEER SHALL BE NOTIFIED PRIOR TO THE CONTRACTOR CONTINUING.
  - REFER TO ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSION AND DOOR LOCATIONS.
  - REFER TO PLUMBING PLANS FOR EXACT SIZE AND LOCATION OF SANITARY AND WATER CONNECTIONS.
  - REFER TO ELECTRICAL PLANS FOR THE LIGHTING CIRCUITS, FIXTURE DETAIL AND BUILDING CONNECTION LOCATION.
  - 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 Q. 52 D.I.P. (DUCTILE IRON PIPE), REINFORCED CONCRETE PIPE RCP SHALL BE CLASS III.
  - 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.
  - 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 WMM 6"x6" W1.4/M1.4 CONFORMING TO ASTM A154.
  - 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 SURFACES 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.
  - TRANSFORMER PAD SHALL BE INSTALLED PER PROVIDERS SPECIFICATIONS. GENERATOR PADS SHALL BE INSTALLED PER MANUFACTURING SPECIFICATIONS.
  - 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 1-1.
  - 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.
  - 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 WVF 6"x6" W1.4 x W1.4 PLACED AT THE CENTER OF THE SLAB. THE FRONT END OF COMPACTOR PAD SHALL HAVE EMBEDDED A 6"x6"x3/8" STEEL ANGLE.
  - 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 WVF 6"x6" - 2 W1.4 x W1.4 PLACED AT CENTER OF SLAB.
  - 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.
  - 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 1 1/2" BINDER COURSE OVERLAYING A 12" COMPACTED GRAVEL BASE COURSE.
  - ALL AREAS TO BE PLANTED WITH GRASS SHALL BE TREATED WITH 100 POUNDS OF GROUND LIME/STONE 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.
  - ALL LANDSCAPED AREAS TO BE LOAMED AND SEEDED SHALL HAVE THE FOLLOWING MIX:  
PERENNIAL RYE 25%  
KENTUCKY BLUE 20%  
CREeping RED FESCUE OR PENNLAWN FESCUE 50%  
SEED @ THE RATE OF 5#/1,000 S.F.
  - 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.
  - THE CONTRACTOR SHALL REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEANUP 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.
  - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTITUTE EROSION CONTROL MEASURES ON ANY AS NECESSARY BASIS, SUCH THAT EXCESSIVE SOIL EROSION DOES NOT OCCUR. MEASURES SHALL INCLUDE HAY BALE DIKES AROUND DRAINAGE INLETS, MULCHING AND PLANTING OF DISTURBED AREAS.
  - PRIOR TO THE COMMENCEMENT OF ANY OTHER WORK A SILT SACK SHALL BE INSTALLED IN EACH EXISTING DRAINAGE INLET.
  - AFTER INSTALLATION OF EACH DRAINAGE INLET A SILT SACK SHALL BE INSTALLED IN EACH INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM.
  - AT THE END OF CONSTRUCTION ALL DRAINAGE STRUCTURES ARE TO BE CLEANED OF SILT, STONES AND OTHER DEBRIS.
  - DURING CONSTRUCTION THE EROSION CONTROL MEASURES SHALL BE INSPECTED ONCE PER WEEK AND WITHIN 24 HOURS OF ANY STORM EVENT GENERATING MORE THAN 1/2" OF RAINFALL. THE EROSION CONTROL MEASURES SHALL BE CLEANED REGULARLY AND ADJUSTED IF NECESSARY TO ENSURE THAT NO SILT OR DEBRIS LEAVES THE SITE.



5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS		
4	11/14/16	PER TOWN & PEER REVIEW COMMENTS		
3	10/21/16	REVISED SITE LAYOUT		
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS		
1	11/20/15	NO CHANGE		
DATE	11/11/15	REV	DATE	REVISION
SHEET	19 OF 21			
PLAN NO.	2015-061-DT05			
DISK REF NO.	F:\P\2015-061			
DRAWN BY	C.L.			
CHKD BY	DAM			
APPD BY	DNK			

**CAMPANELLI BELLINGHAM LLC**  
160 HIGH STREET  
BELLINGHAM, MA

**DETAIL SHEET**

**KELLY ENGINEERING GROUP, INC.**  
CIVIL ENGINEERING CONSULTANTS  
0 CAMPANELLI DRIVE • BRAINTREE MA • 02184  
PHONE: 781 843 4333 FAX: 781 843 0028

SHEET NO. **19**

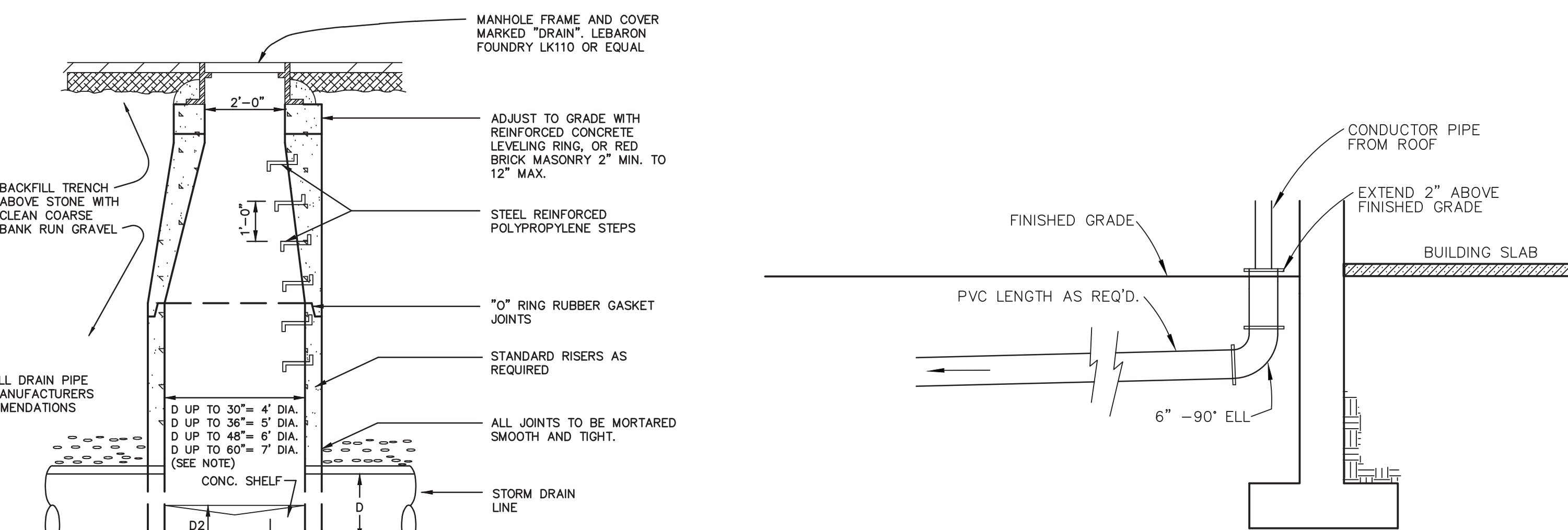
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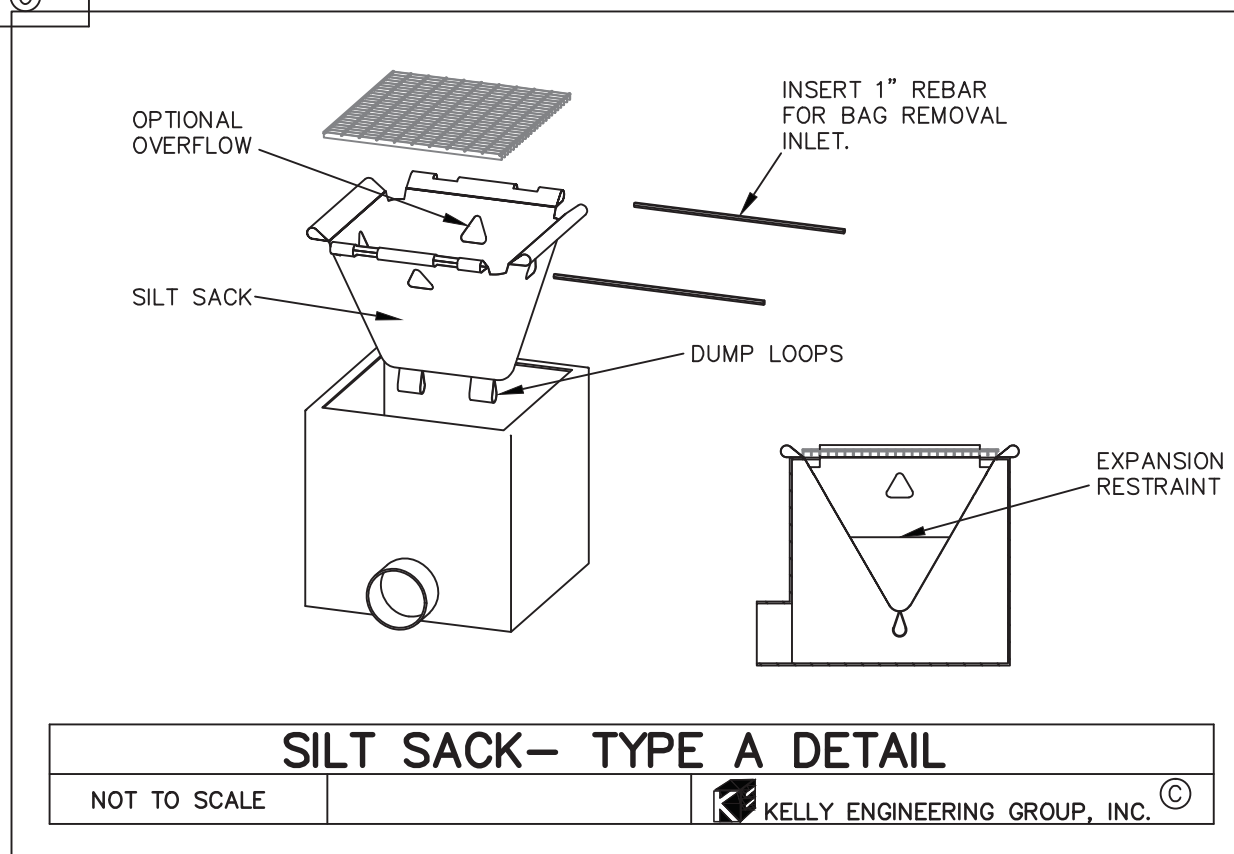
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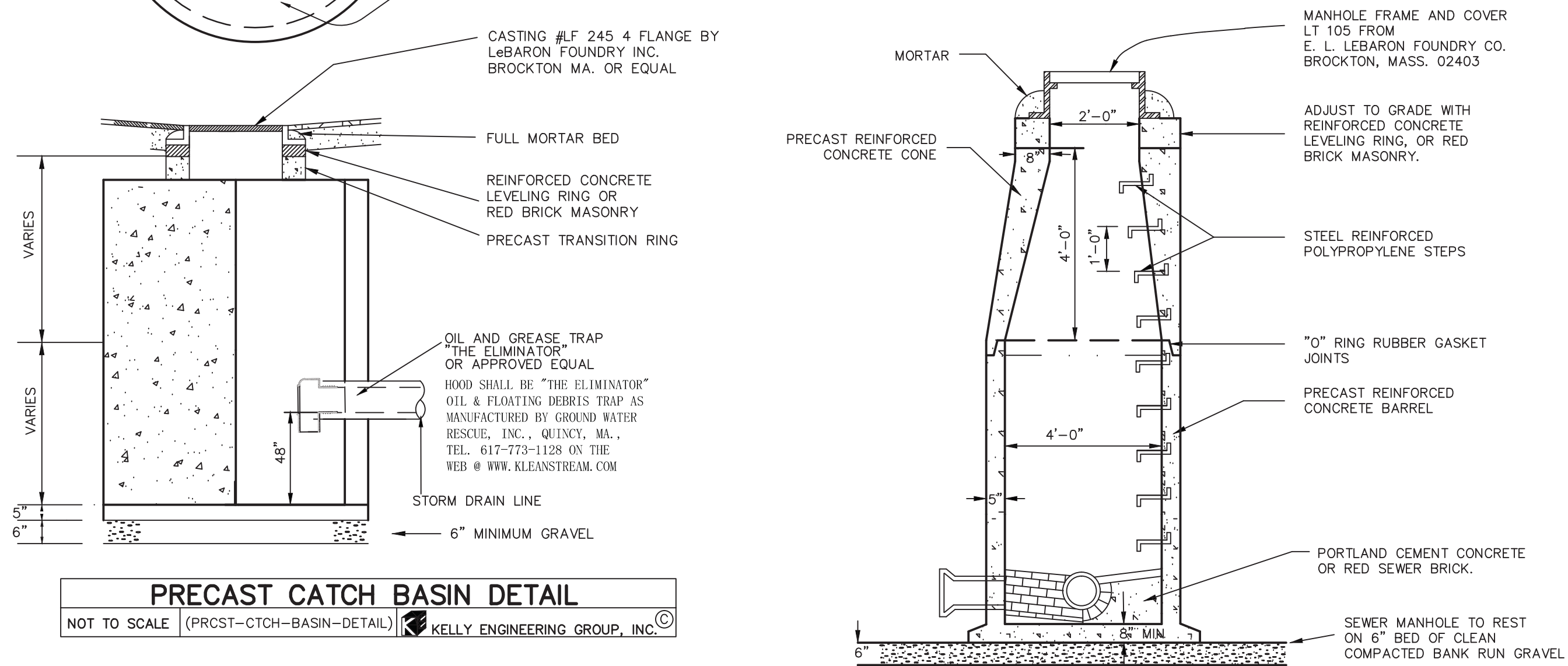


**ROOF DRAIN CONNECTION DETAIL**  
NOT TO SCALE (ROOF-RAIN-CONNECTION) KELLY ENGINEERING GROUP, INC.

**PRECAST DRAIN MANHOLE DETAIL**  
NOT TO SCALE (PRECAST-RAIN-MANHOLE) KELLY ENGINEERING GROUP, INC.

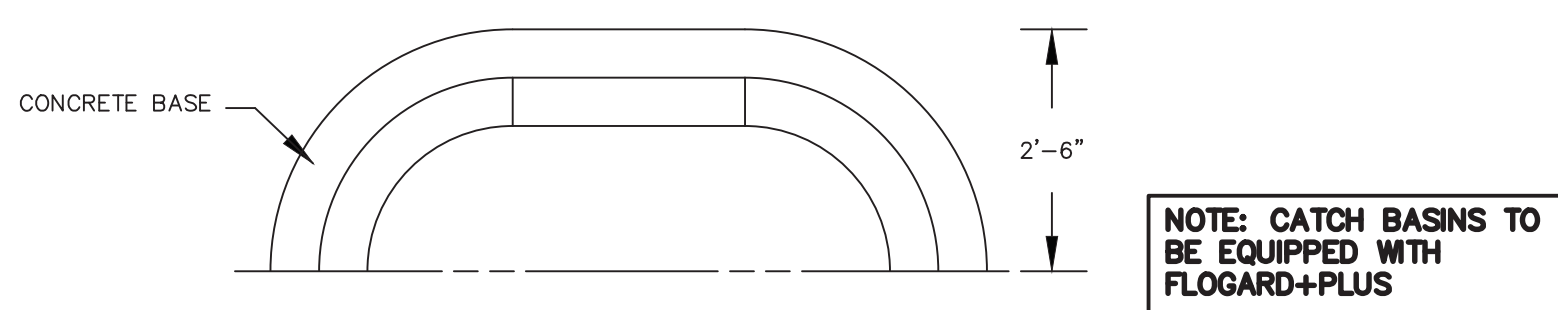


**SILT SACK- TYPE A DETAIL**  
NOT TO SCALE KELLY ENGINEERING GROUP, INC.

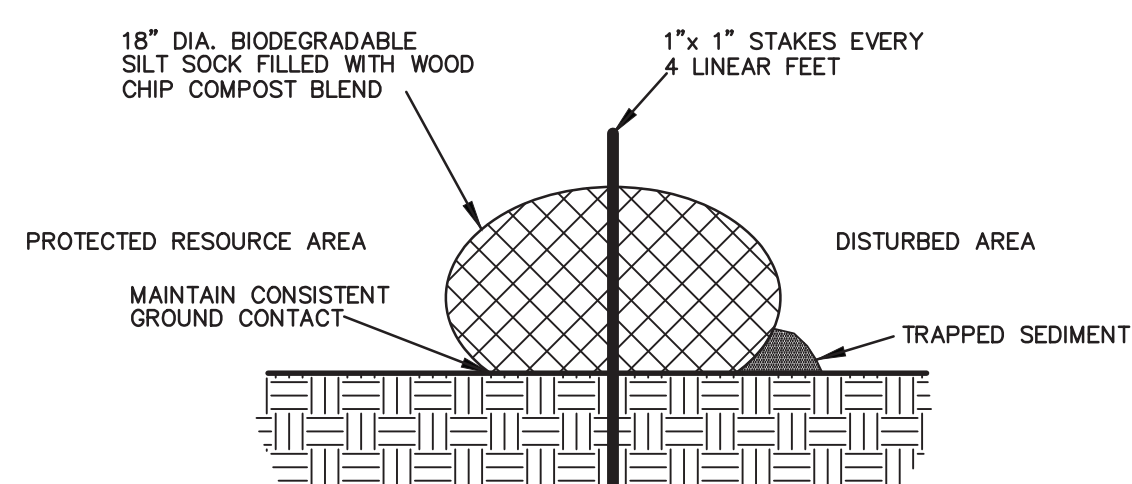


**PRECAST CATCH BASIN DETAIL**  
NOT TO SCALE (PRECAST-CATCH-BASIN-DETAIL) KELLY ENGINEERING GROUP, INC.

**SEWER MANHOLE DETAIL**  
NOT TO SCALE (SEWER-MANHOLE) KELLY ENGINEERING GROUP, INC.

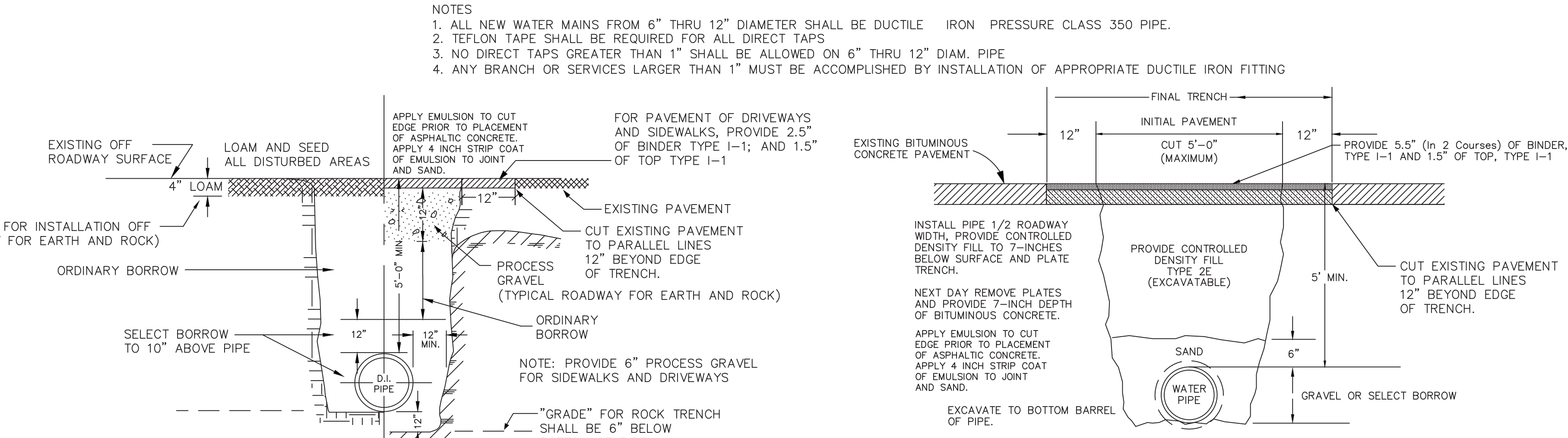


**PRECAST DOUBLE CATCH BASIN**  
NOT TO SCALE (PRECAST-DBL-CATCH-BASIN) KELLY ENGINEERING GROUP, INC.

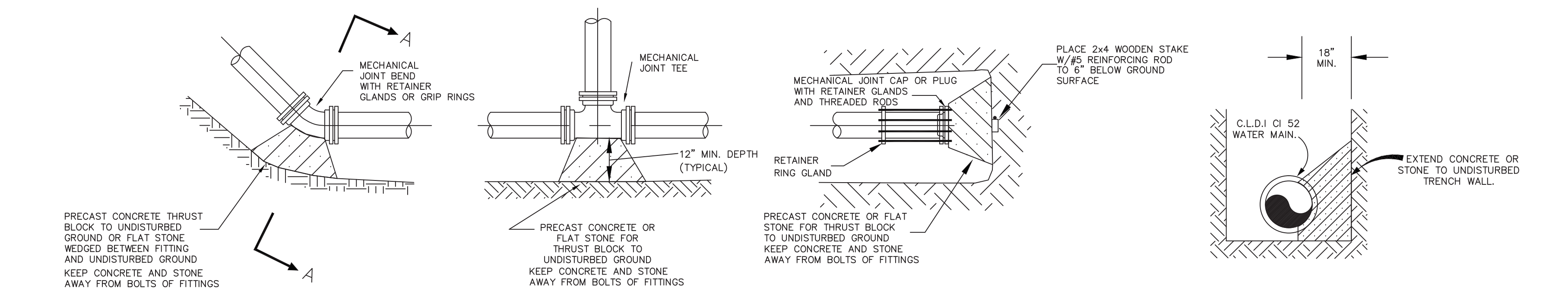


**SILT SOCK LINE DETAIL**  
NOT TO SCALE KELLY ENGINEERING GROUP, INC.

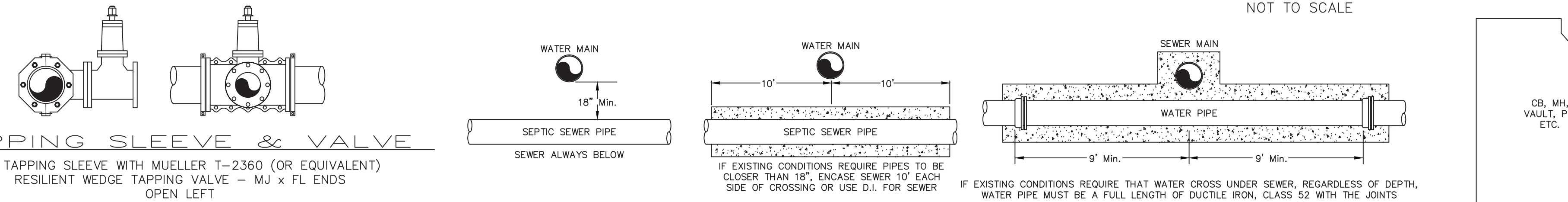
BELLINGHAM WATER DETAILS



**TYPICAL TRENCH SECTION FOR DUCTILE IRON WATER MAINS**



**TYPICAL THRUST BLOCK DETAILS**



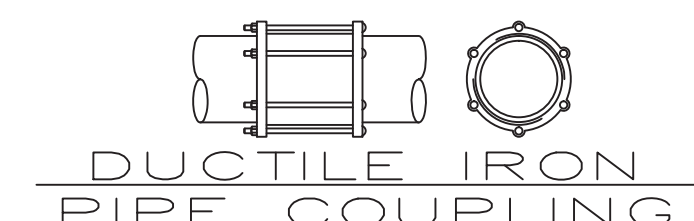
**TAPPING SLEEVE & VALVE**  
M/J TAPPING SLEEVE WITH MUELLER T-2360 (OR EQUIVALENT) RESILIENT WEDGE TAPPING VALVE - M/J x FL ENDS OPEN LEFT

NOTE:  
ALL MAIN LINE VALVES - (OPEN LEFT, NON RISING STEM) SIZES 3" TO 12" - (GATE VALVES)  
SIZES GREATER THAN 12" - (BUTTERFLY VALVES)  
MUELLER - KENNEDY - DARLING - EPOXY COATED  
MUELLER RESILIENT SEAT EPOXY COATED, AWWA APPROVED

**WATER / SEWER CROSSINGS**



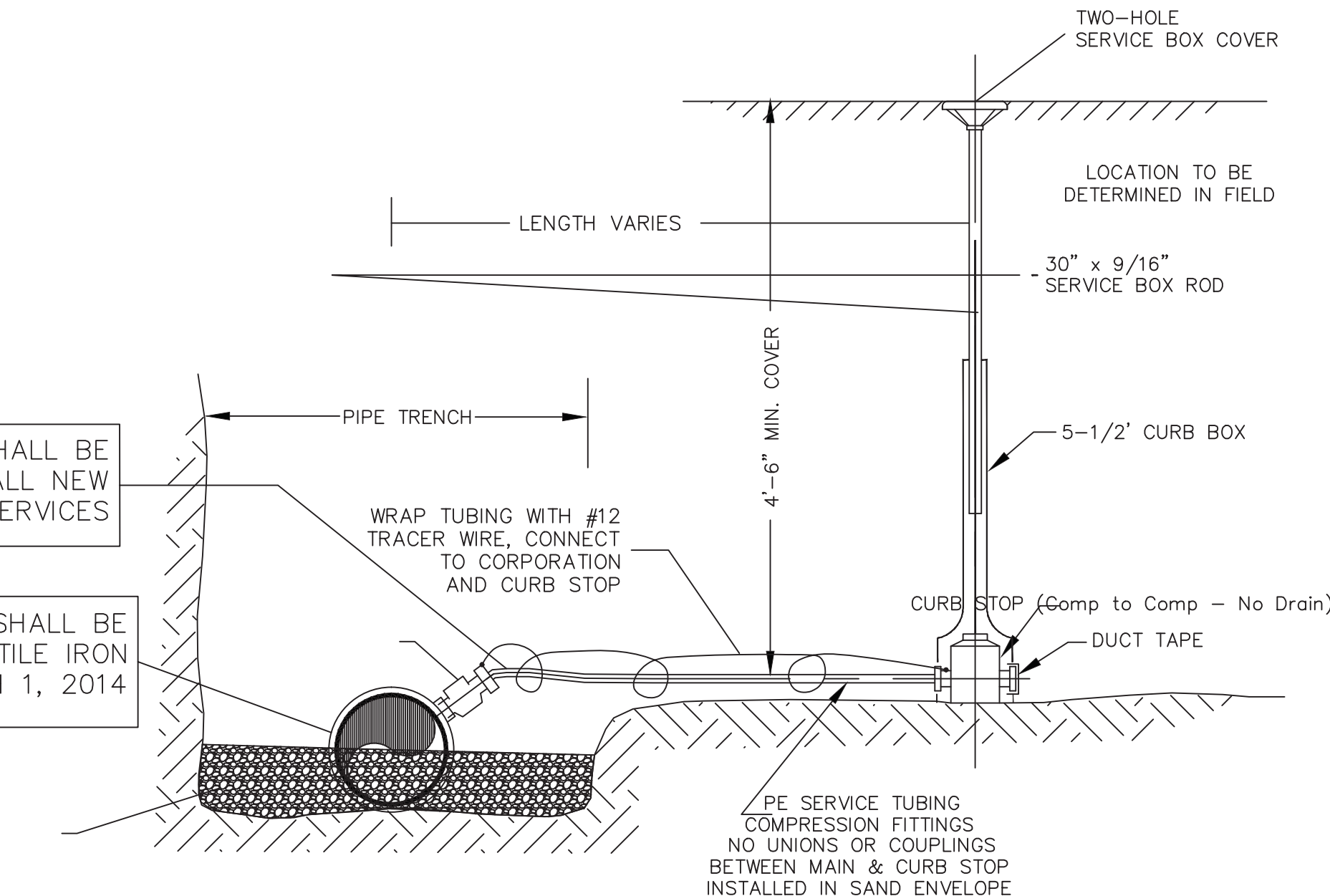
**WATER PIPE CLEARANCE TO STRUCTURES**



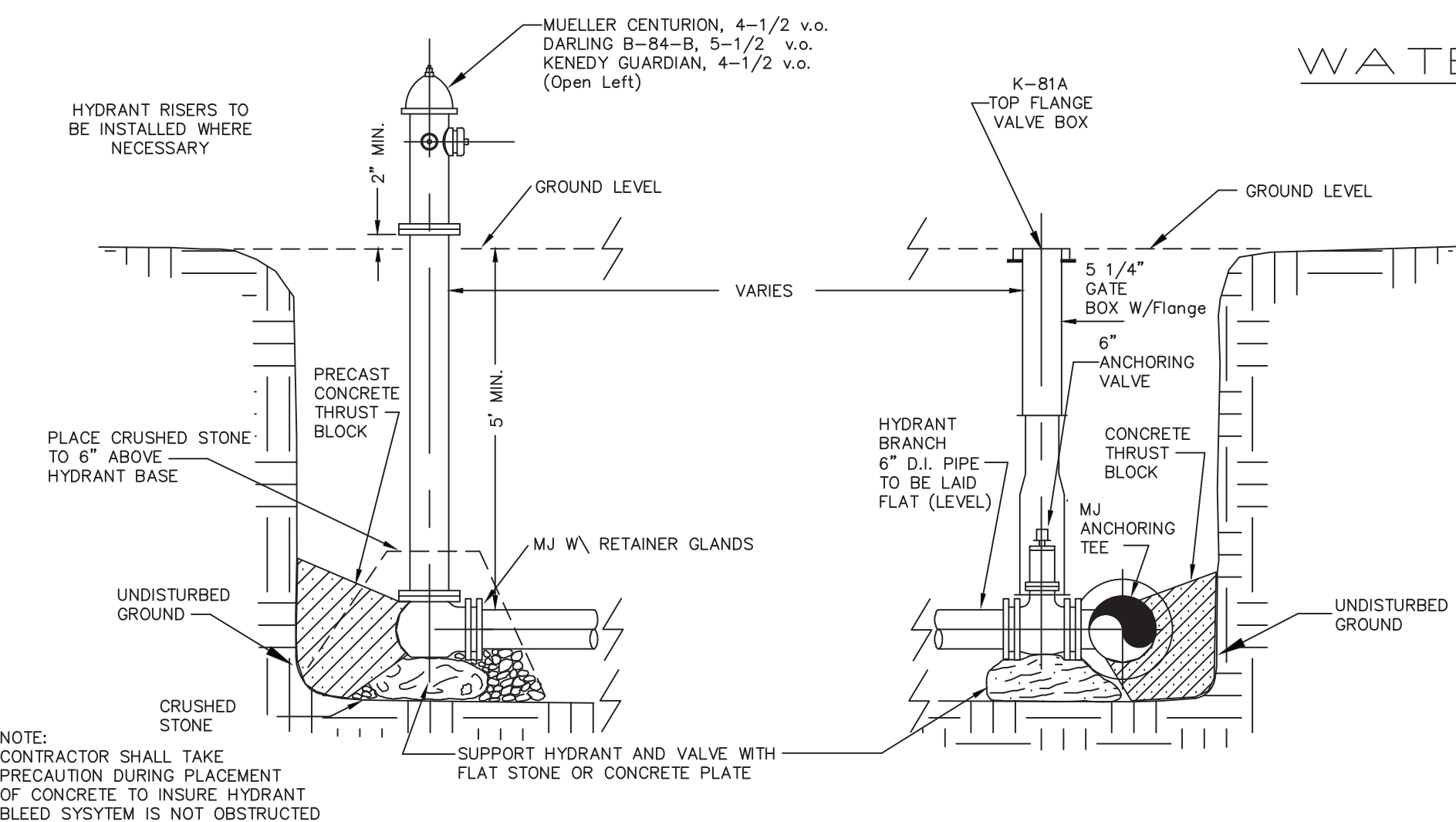
**DUCTILE IRON PIPE COUPLING**  
STYLE 501 & RC 501 BY ROMAC INDUSTRIES OR EQUIVALENT TO BE USED FOR PIPE REPAIRS, "CUT-IN'S", COUPLING DIFFERENT TYPES OF PIPE, & CORRECTING MISALIGNED PIPE (DI to C-900; DI to AC; C-900 to AC)

TEFLON TAPE SHALL BE ADDED TO ALL NEW WATER SERVICES

ALL NEW WATER MAINS SHALL BE PRESSURE CLASS 350 DUCTILE IRON EFFECTIVE MARCH 1, 2014

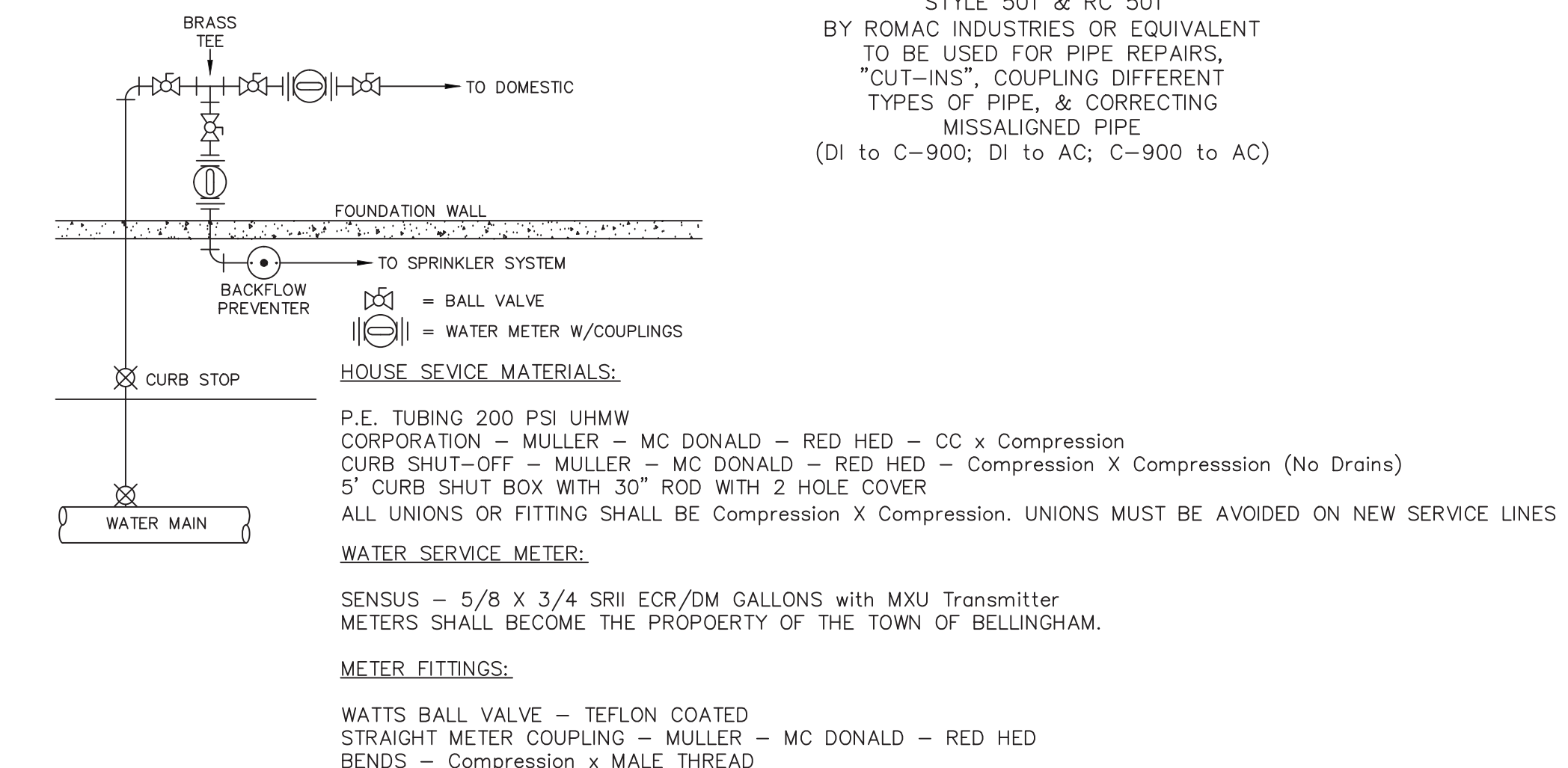


**TYPICAL SERVICE CONNECTION**  
SEE SPEC. SHEET



**TYPICAL HYDRANT INSTALLATION**

**WATER SERVICE CONNECTION WITH SECOND METER (LAWN SPRINKLER SYSTEMS)**



HOUSE SERVICE MATERIALS:  
P.E. TUBING 200 PSI UHMW CORPORATION - MULLER - MC DONALD - RED HED - CC x Compression CURB SHUT-OFF - MULLER - MC DONALD - RED HED - Compression X Compression (No Drains) 5" CURB SHUT BOX WITH 30" ROD WITH 2 HOLE COVER  
ALL UNIONS OR FITTING SHALL BE Compression X Compression. UNIONS MUST BE AVOIDED ON NEW SERVICE LINES  
WATER SERVICE METER:  
SENSUS - 5/8 x 3/4 SRI ECR/DM GALLONS with MXU Transmitter METERS SHALL BECOME THE PROPERTY OF THE TOWN OF BELLINGHAM.  
METER FITTINGS:  
WATTS BALL VALVE - TEFLON COATED  
STRAIGHT METER COUPLING - MULLER - MC DONALD - RED HED  
BENDS - Compression x MALE THREAD

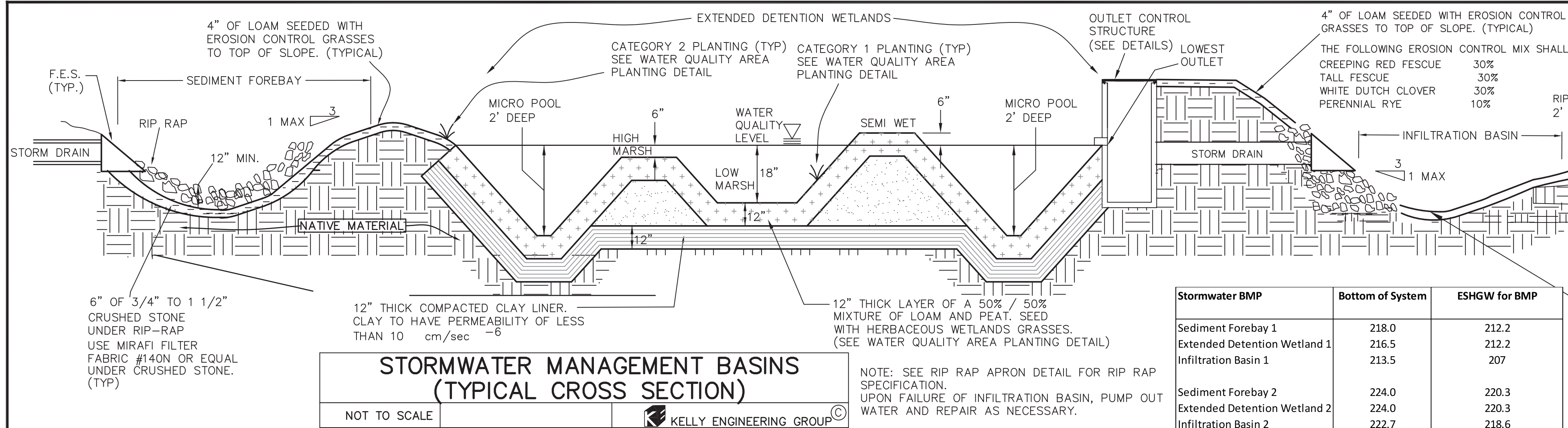
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PLAN NO.	2015-061-DT05			
DISK REF NO.	F:\P\2015-061			
DRAWN BY	C.L.			
CHKD BY	DAM			
APPD BY	DNK			
<b>CAMPANELLI BELLINGHAM LLC</b> 160 HIGH STREET BELLINGHAM, MA <b>DETAIL SHEET</b> <b>KELLY ENGINEERING GROUP, INC.</b> CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAintree MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028				

DAVID KELLY CIVIL ENGINEER  
REGISTERED PROFESSIONAL ENGINEER  
NO. 37942  
MASSACHUSETTS

SHEET NO. **20**

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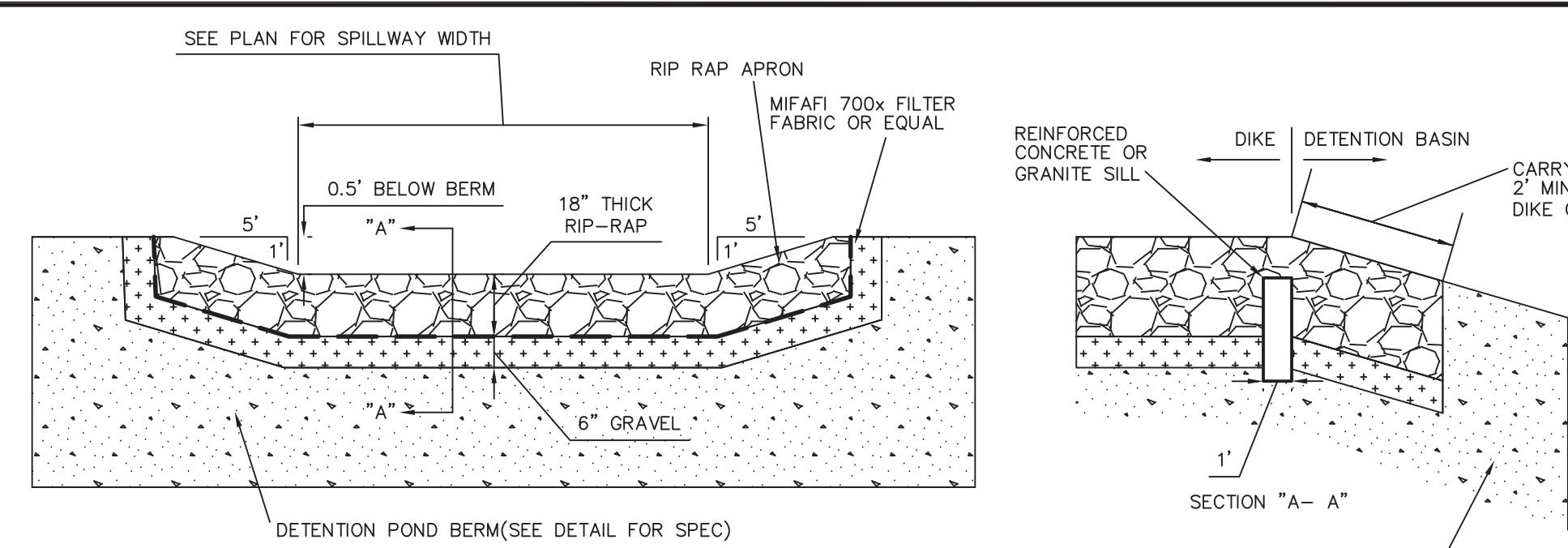
Stormwater BMP	Bottom of System	ESHW for BMP
Sediment Forebay 1	218.0	212.2
Extended Detention Wetland 1	216.5	212.2
Infiltration Basin 1	213.5	207
Sediment Forebay 2	224.0	220.3
Extended Detention Wetland 2	224.0	220.3
Infiltration Basin 2	222.7	218.6
Infiltration Basin 3	218.5	214.4
Infiltration Basin 3A	221.5	216
Infiltration Basin 4	212.0	206.5

\* See sheet 2 for test pit logs and soils information

NOTE 1: INFILTRATION BASIN USE 12" MIN. THICK DRAIN ROCK TO BE PLACED ON PARENT MATERIAL. ALL TOP SOIL & B-HORIZON MATERIAL SHALL BE REMOVED AND REPLACED WITH STONE. CONTACT OWNER FOR INSPECTION OF EXCAVATION.

NOTE 2: ALL TOP SOIL, B-HORIZON MATERIAL, UNSUITABLE SOILS AND MATERIALS SHALL BE REMOVED AND REPLACED WITH STONE. ANY SILT LOAM ENCOUNTERED SHALL BE REMOVED FROM BASIN. CONTACT OWNER FOR INSPECTION OF EXCAVATION. EXCAVATION OF INFILTRATION BASIN SHALL BE REVIEWED BY THE ENGINEER, PRIOR TO PLACEMENT OF LOAM AND SEED.

NOTE 3: CONSTRUCTION OF INFILTRATION BASIN SHALL LIMIT SMEARING OR COMPACTING SOILS. NEVER CONSTRUCT THE BASIN IN THE WINTER OR WHEN IT IS RAINING. USE LIGHT EARTH MOVING EQUIPMENT TO EXCAVATE THE INFILTRATION BASIN BECAUSE HEAVY EQUIPMENT COMPACTS THE SOIL THEREFORE REDUCING THE INFILTRATION CAPACITY. SOME COMPACTION OF THE SOIL IS INEVITABLE DURING CONSTRUCTION. UPON FINAL GRADING, DEEPLY TILL THE BASIN FLOOR WITH A ROTARY TILLER OR A DISC HARROW TO A DEPTH OF 12". INFILTRATION BASIN SHALL BE PROTECTED FROM CONSTRUCTION VEHICLE ACCESS.

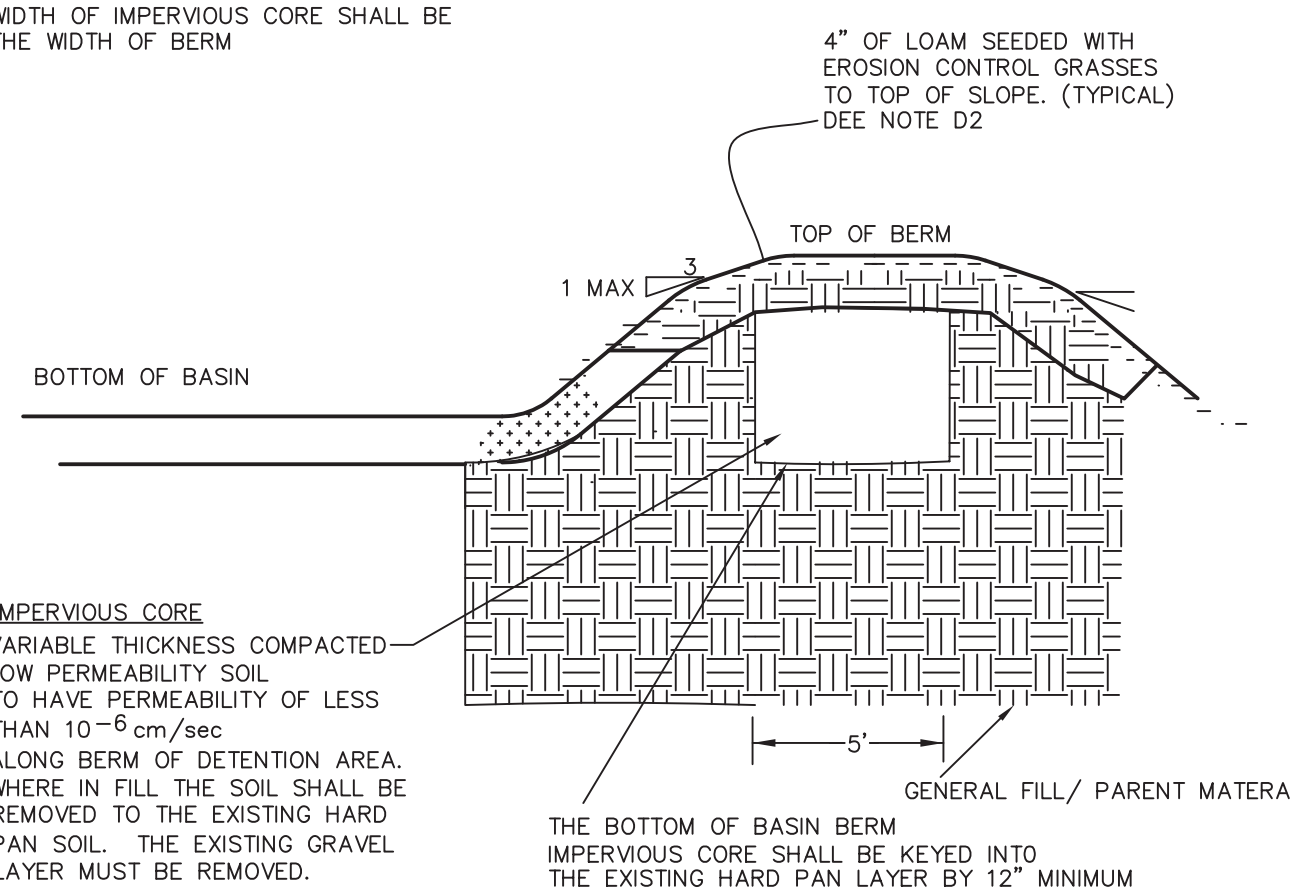


APRON TO BE COMPOSED OF A LAYER OF STONES 18" IN THICKNESS OR MORE, PLACED UPON A BED OF SAND AND GRAVEL 6" IN THICKNESS. THE STONES SHALL BE SIZED SO THAT NOT LESS THAN 80% SHALL HAVE ONE DIMENSION 12" OR MORE. THE STONES, AFTER BEING LAID, SHALL BE CAREFULLY CHINKED BY HAND TO MAKE A REASONABLY SMOOTH 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 REQUIREMENTS. RIP RAP IS TO BE USED WHERE INDICATED ON THE PLAN.

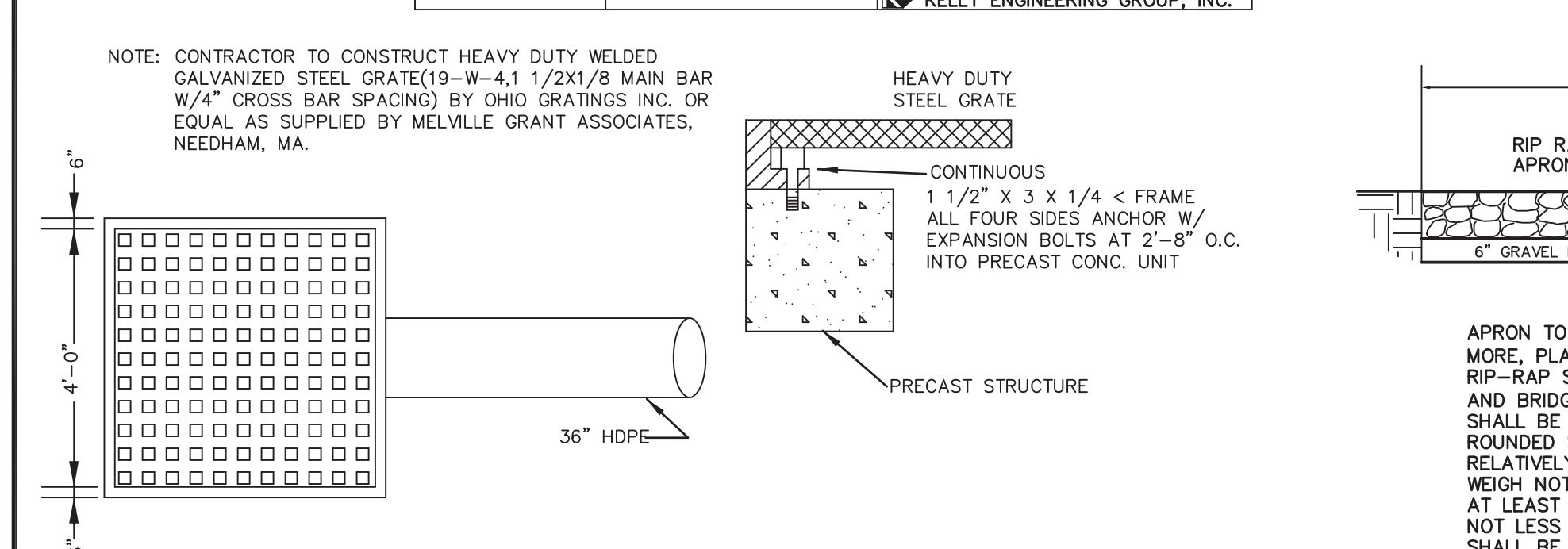
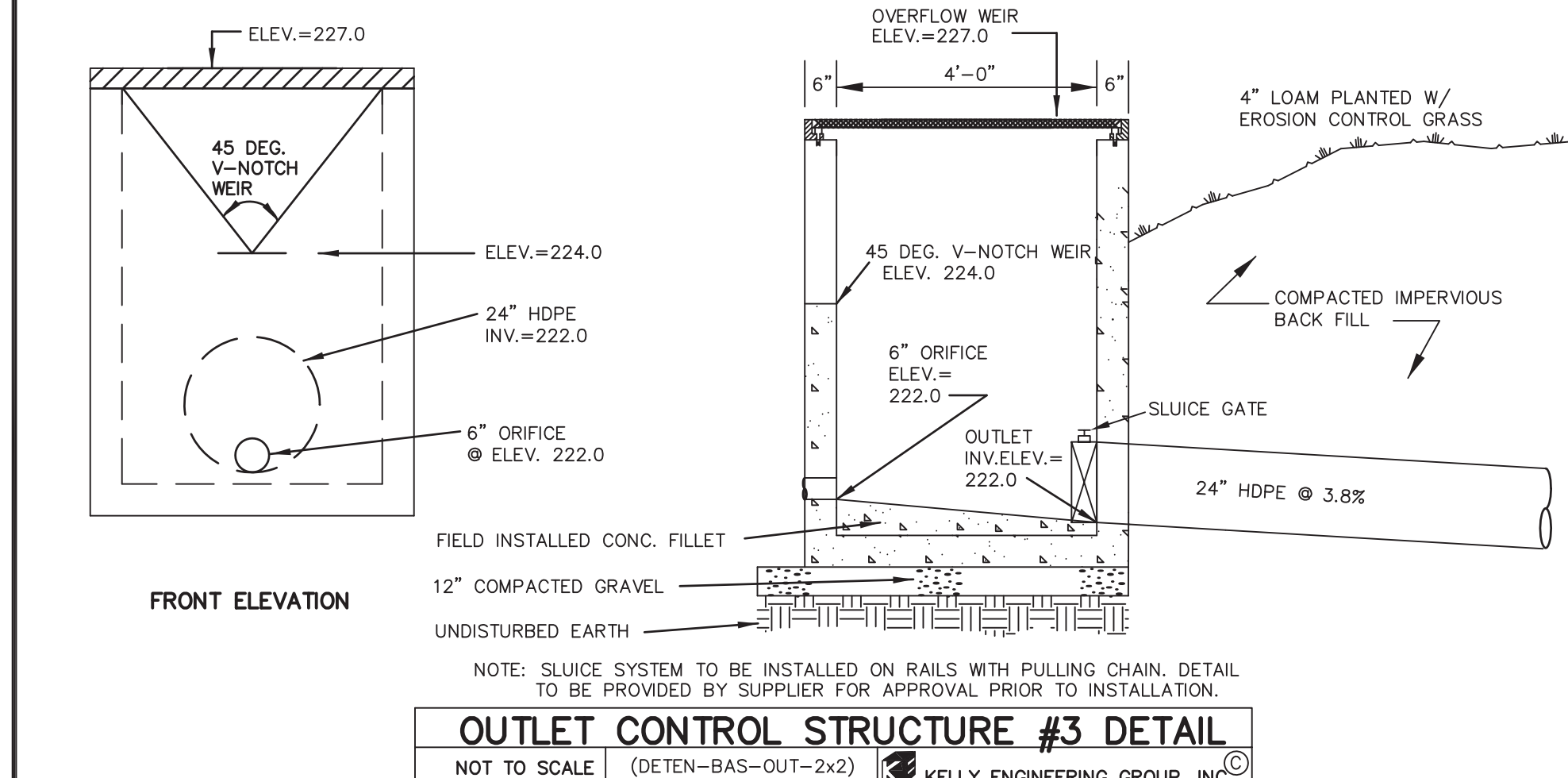
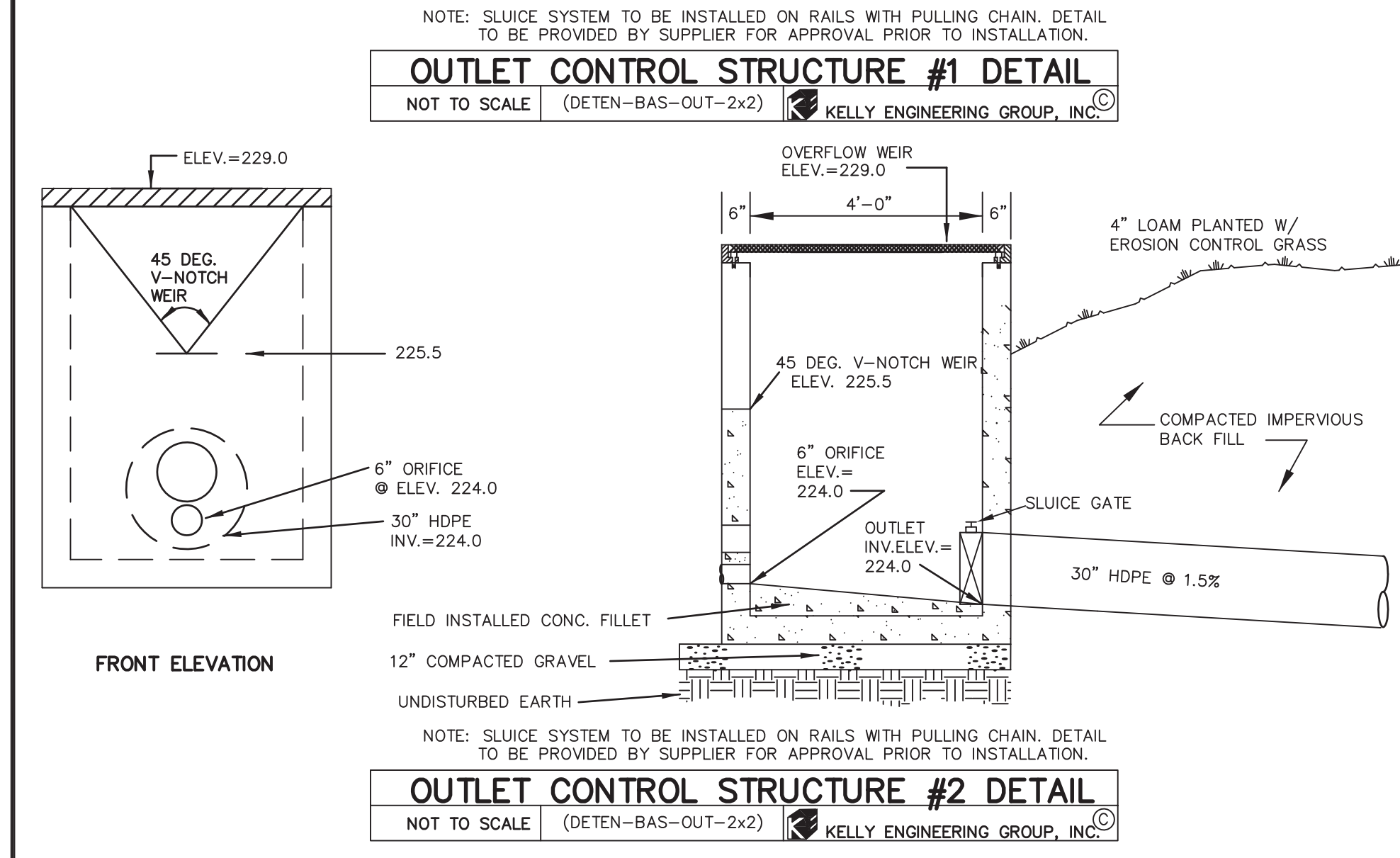
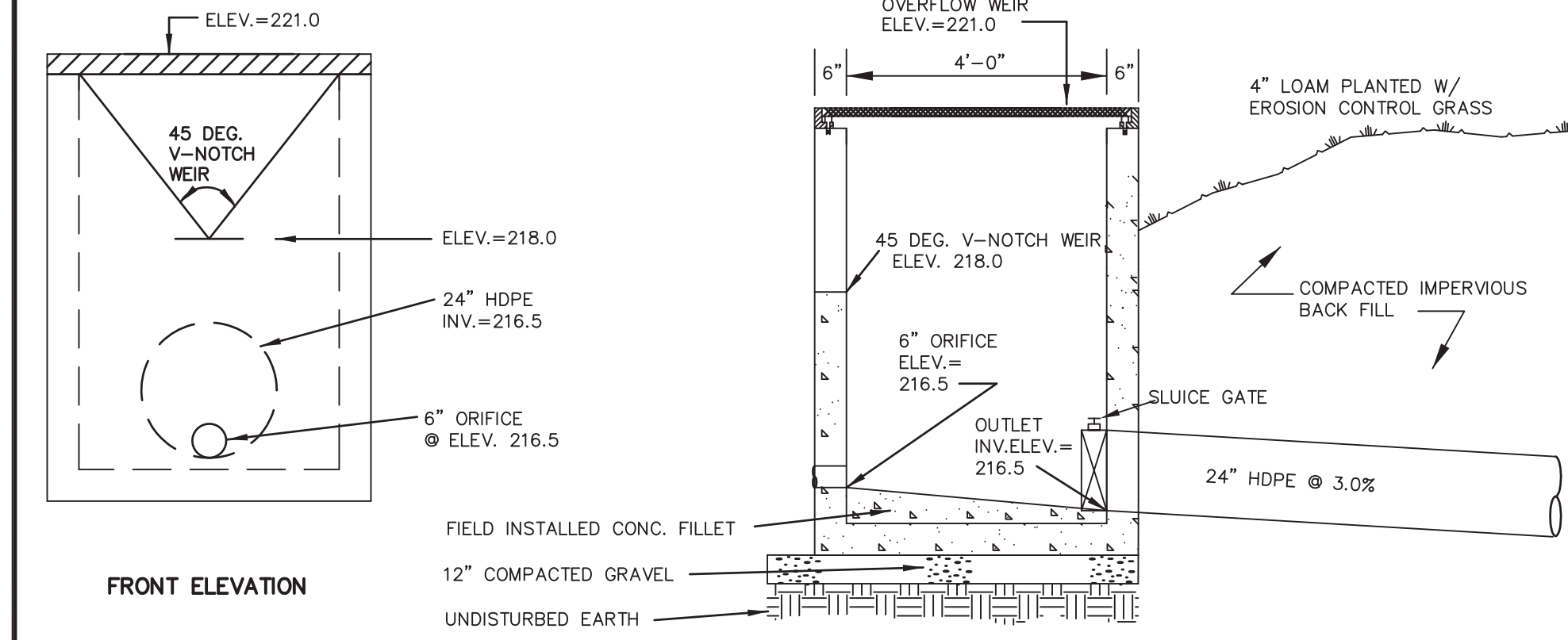
**EMERGENCY SPILLWAY DETAIL**  
NOT TO SCALE (HEADWALL-DETAIL-FLARED-END) KELLY ENGINEERING GROUP, INC.

NOTE: TO BE USED FOR ALL BERMS CONSTRUCTED IN FILL

WIDTH OF IMPERVIOUS CORE SHALL BE THE WIDTH OF BERM

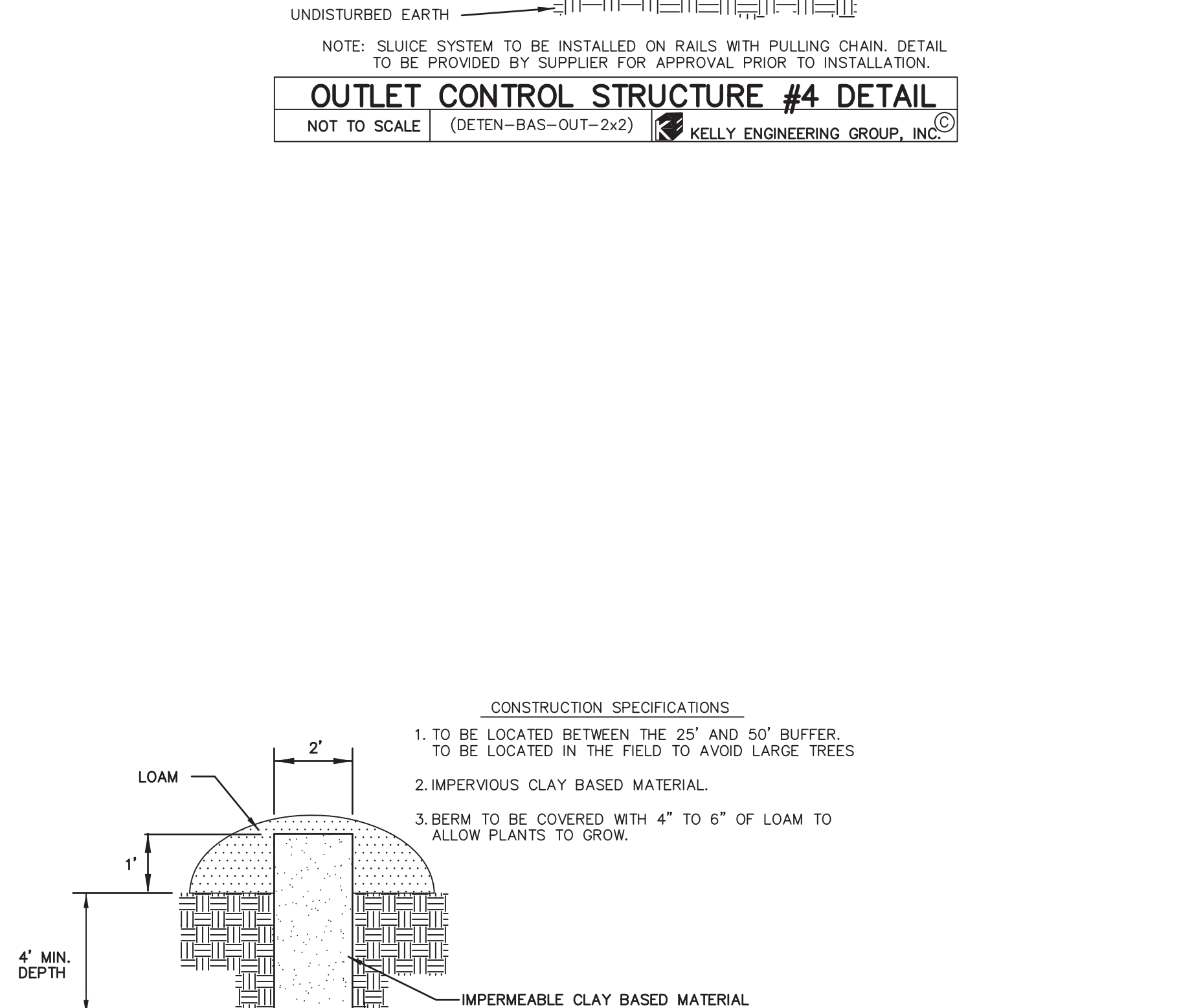
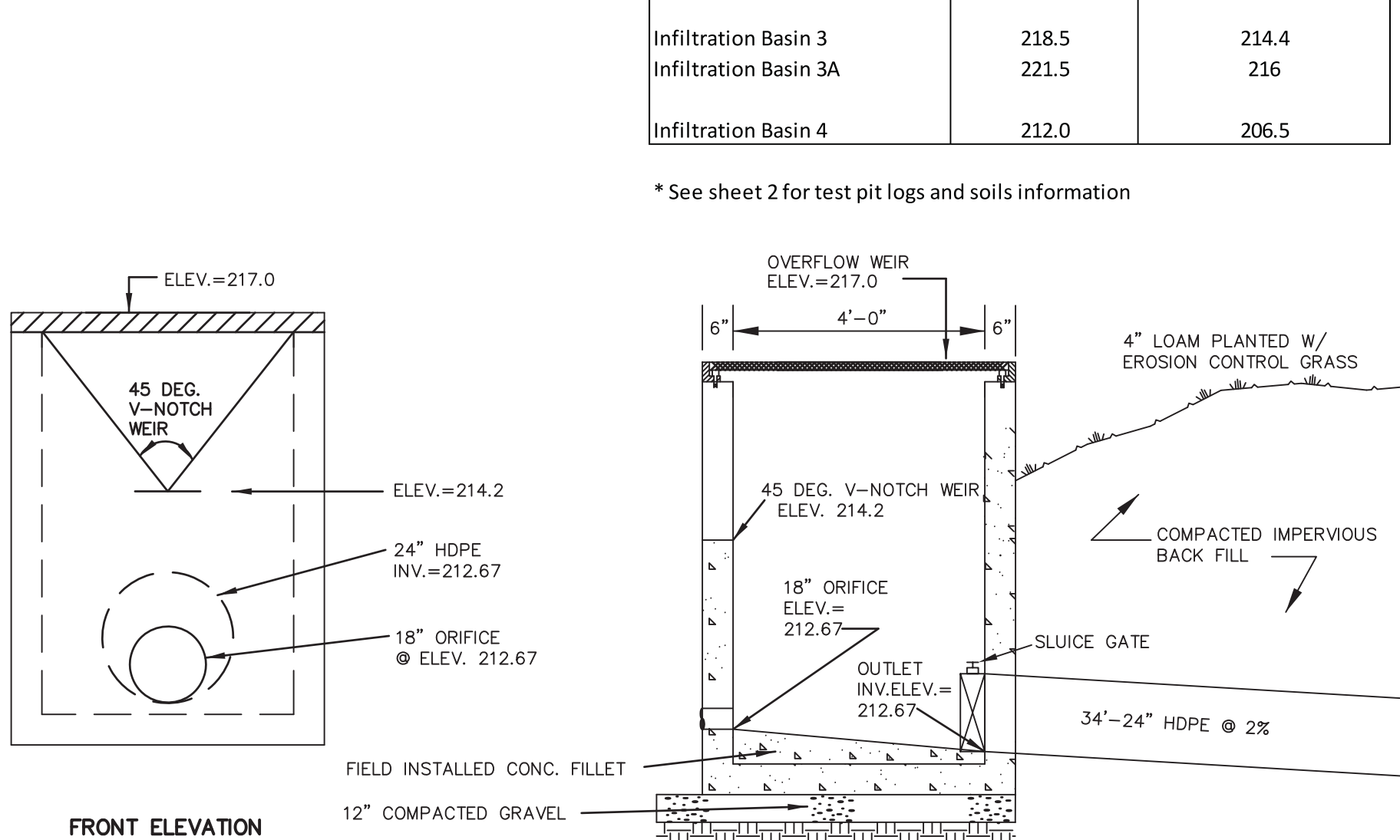


**IMPERVIOUS CORE DETAIL**  
NOT TO SCALE KELLY ENGINEERING GROUP, INC.



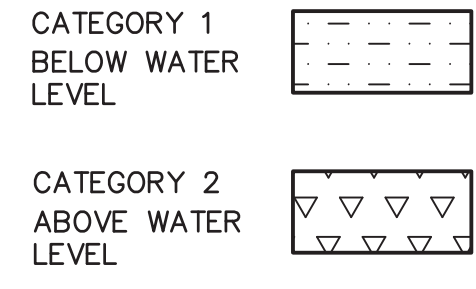
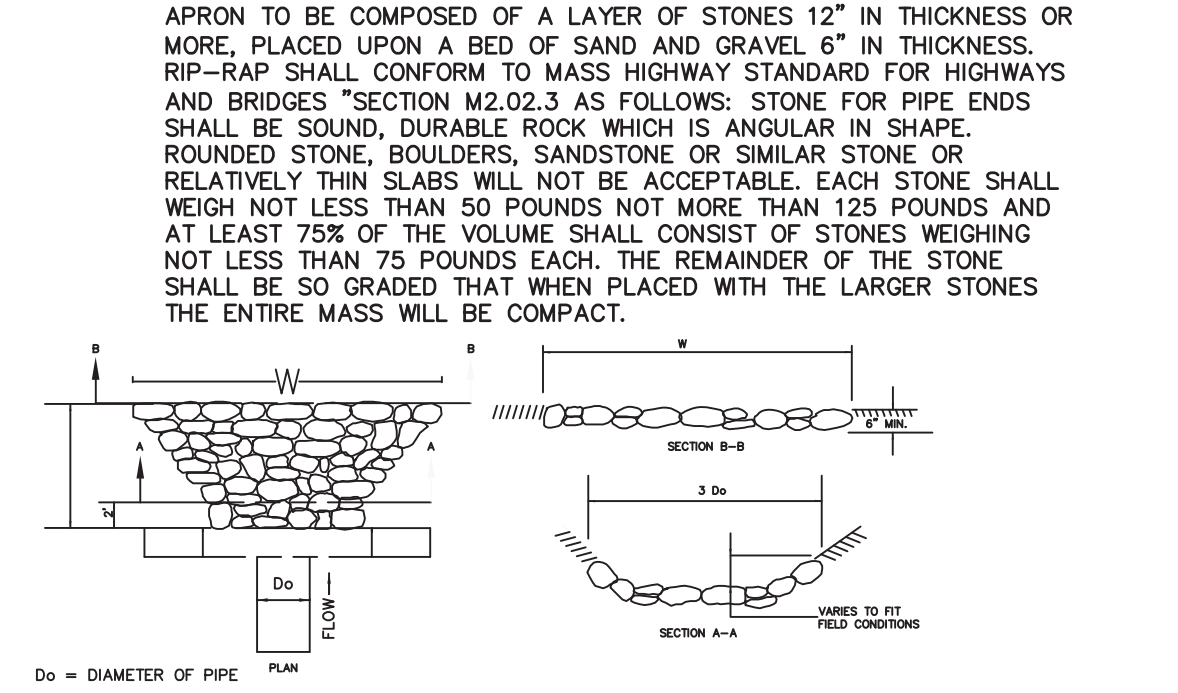
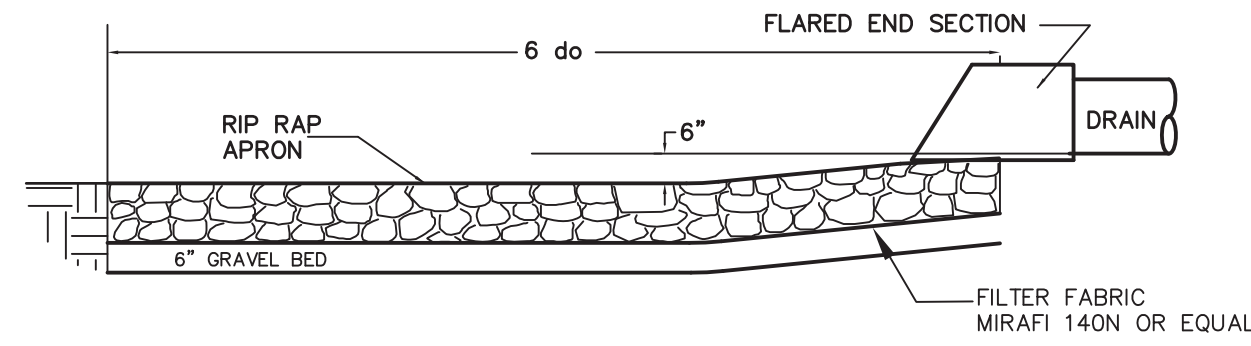
**GRATE DETAIL FOR OUTLET CONTROL STRUCTURES & DISTRIBUTION STRUCTURES**  
NOT TO SCALE KELLY ENGINEERING GROUP, INC.

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**CONSTRUCTION SPECIFICATIONS**

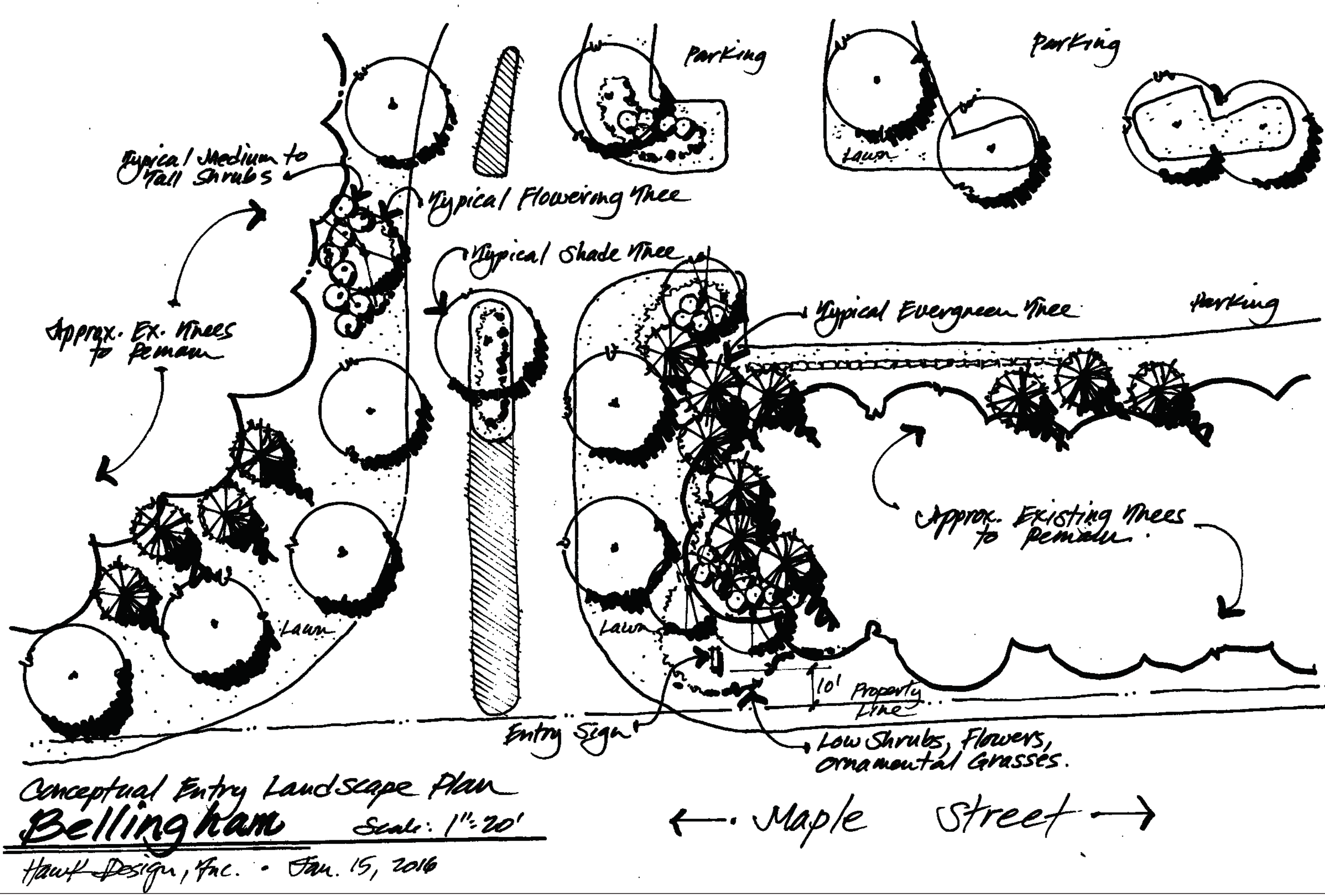
1. TO BE LOCATED BETWEEN THE 25' AND 50' BUFFER. TO BE LOCATED IN THE FIELD TO AVOID LARGE TREES
2. IMPERVIOUS CLAY BASED MATERIAL.
3. BERM TO BE COVERED WITH 4" TO 6" OF LOAM TO ALLOW PLANTS TO GROW.



SPECIES	SIZE/TYPE	AVERAGE SPACING/DISTRIBUTION
PONTERDERIA CORDATA/PICKERELWEED	BR OR PEAT POTS	PLANTED 2' O.C. IN SAME SPECIES CLUSTERS OF 5-10 PLANTS. CLUSTERS 15' O.C. IN WATER 12-18" DEEP
ELEOCHARIS ACICULARIS/SPIKERUSH	BR OR PEAT POTS	
SORBUS ACUTUS/HARD-STEMMED BULLRUSH	BR OR PEAT POTS	
PETALANDRA VIRGINICA/ARROW DRUM	BR OR PEAT POTS	
YBURNUM CASSINALDES/WILD RAISIN	24-36" TALL, CG	SHRUBS AVERAGE 6' O.C. IN SAME SPECIES CLUSTERS OF 5-10 PLANTS. CLUSTERS 15' O.C. IN WATER 12-18" DEEP
CORNUS AMOMUM/SILKY DOGWOOD	24-36" TALL, CG	
VACINIUM CORYMBOSUM/HIGHBUSH BLUEBERRY	24-36" TALL, CG	
SAMBUCUS CANADENSIS/ELDERBERRY	24-36" TALL, CG	
ARONIA MELANOCARPA/BLACK CHERRYBERRY	24-36" TALL, CG	
WETLAND STABILIZING SEED MIX (FALL BROADCAST)	SEED MIX-40 LBS/ACRE TOTAL (EQUAL AMOUNTS OF EACH SPECIES BY WEIGHT)	BROADCAST LATE SUMMER OR SPRING IN NON-INUNDATED AREAS.
LOLLUM, MULTIFLORUM, GLYCERIA STRLATA, TRIFOLIUM PRATENSE		

NOTE:ENTIRE WATER QUALITY AREA SHALL BE LINED WITH 12" OF A SILT/CLAY MIXTURE WITH A PERMEABILITY OF 10 cm/sec -6  
4" OF LOAM SHALL BE PLACED ON LINING. LOAM SHALL BE PLANTED AND SEED AS SHOWN.

**WATER QUALITY AREA PLANTING DETAIL**  
NOT TO SCALE (WATER-QUALITY-AREA) KELLY ENGINEERING GROUP, INC.



RIP-RAP #	LENGTH (FT)	WIDTH (FT)	MEDIAN STONE DIAMETER (FT)
1	13.5	15.5	0.7
2	13.5	8.4	0.3
3	12	7.3	0.8
4	12	7.3	0.3
5	13.5	15.5	0.7
6	12	7.3	0.3
7	9	5.6	0.45
8	43.5	19.4	0.65
9	29.5	13.8	0.5

6	02/07/17	PER PEER REVIEW COMMENTS	
5	01/18/17	REVISED SITE LAYOUT PER TOWN COMMENTS	
4	11/14/16	PER TOWN & PEER REVIEW COMMENTS	
3	10/21/16	REVISED SITE LAYOUT	
2	02/29/16	PER TOWN & PEER REVIEW COMMENTS	
1	11/20/15	NO CHANGE	
REV	DATE	REVISION	BY
SHEET	21 OF 21		
PLAN NO.	2015-061-DT06		
DISK REF NO.	F:\P\2015-061		
DRAWN BY	CJL		
CHKD BY	DAM		
APPD BY	DNK		
<b>CAMPANELLI BELLINGHAM LLC</b> 160 HIGH STREET BELLINGHAM, MA			
<b>DETAIL SHEET</b>			
<b>KELLY ENGINEERING GROUP, INC.</b> CIVIL ENGINEERING CONSULTANTS 0 CAMPANELLI DRIVE • BRAINTREE MA • 02184 PHONE: 781 843 4333 FAX: 781 843 0028			

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SHEET NO.

DAVID KELLY  
CIVIL  
NO. 37942  
REGISTERED ENGINEER  
MASSACHUSETTS

Digitally signed by David Kelly  
DN: cn=David Kelly, o=Kelly Engineering Group, Inc., email=dkelly@kellyengr.com, c=US  
Date: 2017.01.08 16:02:25 -0500







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