

0 1000 2000
APPROXIMATE SCALE IN FEET

OLD DUCK POND DAM BREACH

Gardner, Massachusetts

30 May 2025

for

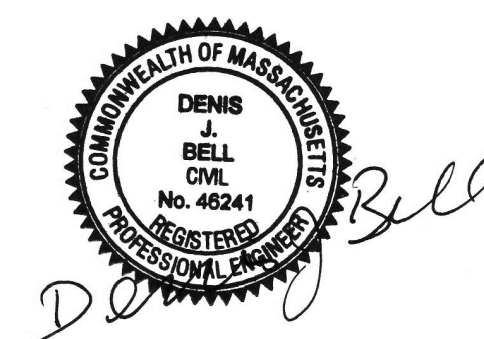
Mount Wachusett Community College

444 Green Street

Gardner, Massachusetts

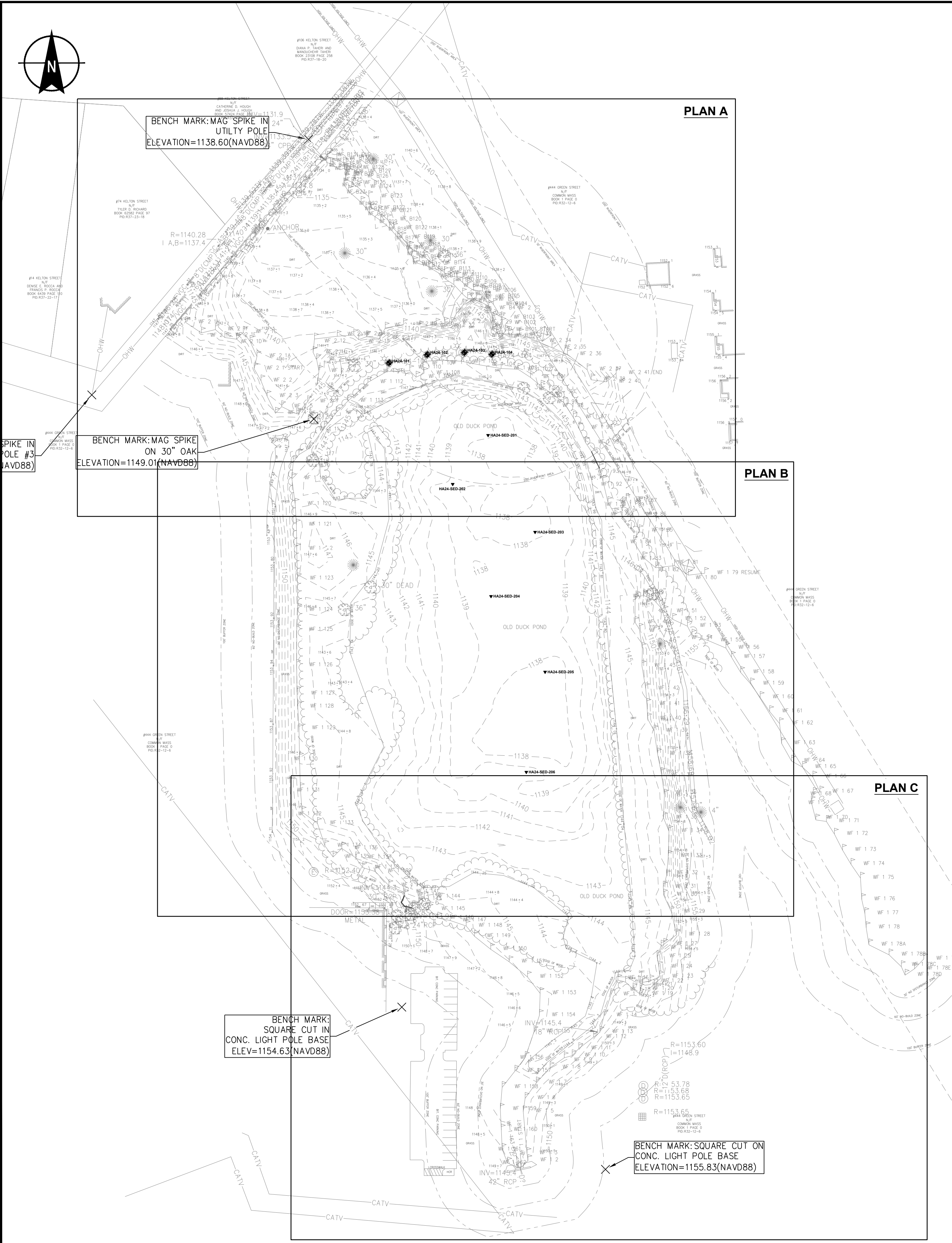
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BID SET



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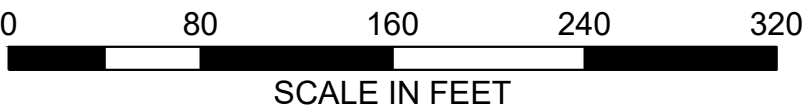
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Tel: 617.886.7400
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NOTES

- BASE PLAN FOR THIS DRAWING OBTAINED FROM A SITE SURVEY COMPLETED BY NITSCH ENGINEERING FOR GENSLER. CAD DRAWING PROVIDED TO HALEY & ALDRICH ON 6 NOVEMBER 2024 IN CAD DRAWING FILE TITLED "15784.2_DUCK POND_GARDNER-TOPO_11-06-2024.dwg"
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Date:	9 JANUARY 2025
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Checked By:	DJB
Approved By:	DJB
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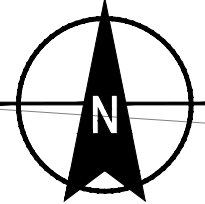
OLD DUCK POND DAM
BREACH

Gardner, Massachusetts

INDEX AND
PLAN KEY

C-2

Sheet: 2 of 18



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OLD DUCK POND DAM
BREACH
Gardner, Massachusetts

GENERAL PLAN

C-3

Sheet: 3 of 18

BENCH MARK: MAG SPIKE IN
LIGHT POLE #3
ELEVATION=1159.19(NAVD88)

BENCH MARK: MAG SPIKE
ON 30" OAK
ELEVATION=1149.01(NAVD88)

BENCH MARK: MAG SPIKE IN
UTILITY POLE
ELEVATION=1138.60(NAVD88)

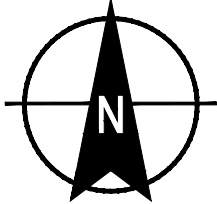
BENCH MARK:
SQUARE CUT IN
CONC. LIGHT POLE BASE
ELEV=1154.63(NAVD88)

BENCH MARK: SQUARE CUT ON
CONC. LIGHT POLE BASE
ELEVATION=1155.83(NAVD88)

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0 80 160 240 320
SCALE IN FEET



CATHERINE D. HOUGH
AND JOSHUA J. HOUGH
BOOK 57424 PAGE 352
PID: R37-23-19

BENCH MARK: MAG SPIKE IN
UTILITY POLE
ELEVATION=1138.60(NAVD88)

INV=1131.9
24" CPP

INV=1133.5
24" CPP

INV=1137.84
A=1134.8
B=1134.7

#74 KELTON STREET
N/F
TYLER D. RICHARD
BOOK 62582 PAGE 97
PID: R37-23-18

R=1140.28
I A,B=1137.4

BENCH MARK: MAG SPIKE
ON 30" OAK
ELEVATION=1149.01(NAVD88)

LEGEND

HA24-101

HA24-SED-201

DESIGNATION AND APPROXIMATE LOCATION OF
TEST BORING COMPLETED BY GEOLOGIC
EARTH EXPLORATIONS, INC. BETWEEN 18 AND
23 SEPTEMBER 2024

DESIGNATION AND APPROXIMATE LOCATION OF
SEDIMENT PROBE COMPLETED BY TG&B
MARINE SERVICES ON 12 NOVEMBER 2024

DESIGNATION FOR WETLAND FLAGGING
WETLANDS DELINEATED BETWEEN 9 AND
13 SEPTEMBER 2024

#444 GREEN STREET
N/F
COMMON MASS
BOOK 1 PAGE 0
PID: R32-12-6

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OLD DUCK POND DAM
BREACH
Gardner, Massachusetts

EXISTING
CONDITIONS
PLAN A

C-4A

Sheet: 4 of 18

NOTES

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OLD DUCK POND DAM
BREACH

Gardner, Massachusetts

C-4B

LEGEND

HA24-SED-201 ▼ DESIGNATION AND APPROXIMATE LOCATION OF SEDIMENT PROBE COMPLETED BY TG&B MARINE SERVICES ON 12 NOVEMBER 2024

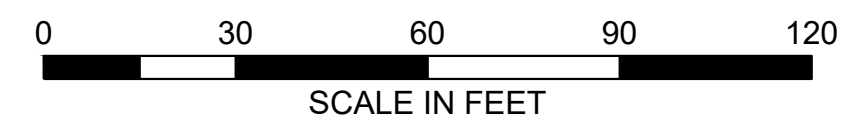
WF 1 2 37 DESIGNATION FOR WETLAND FLAGGING

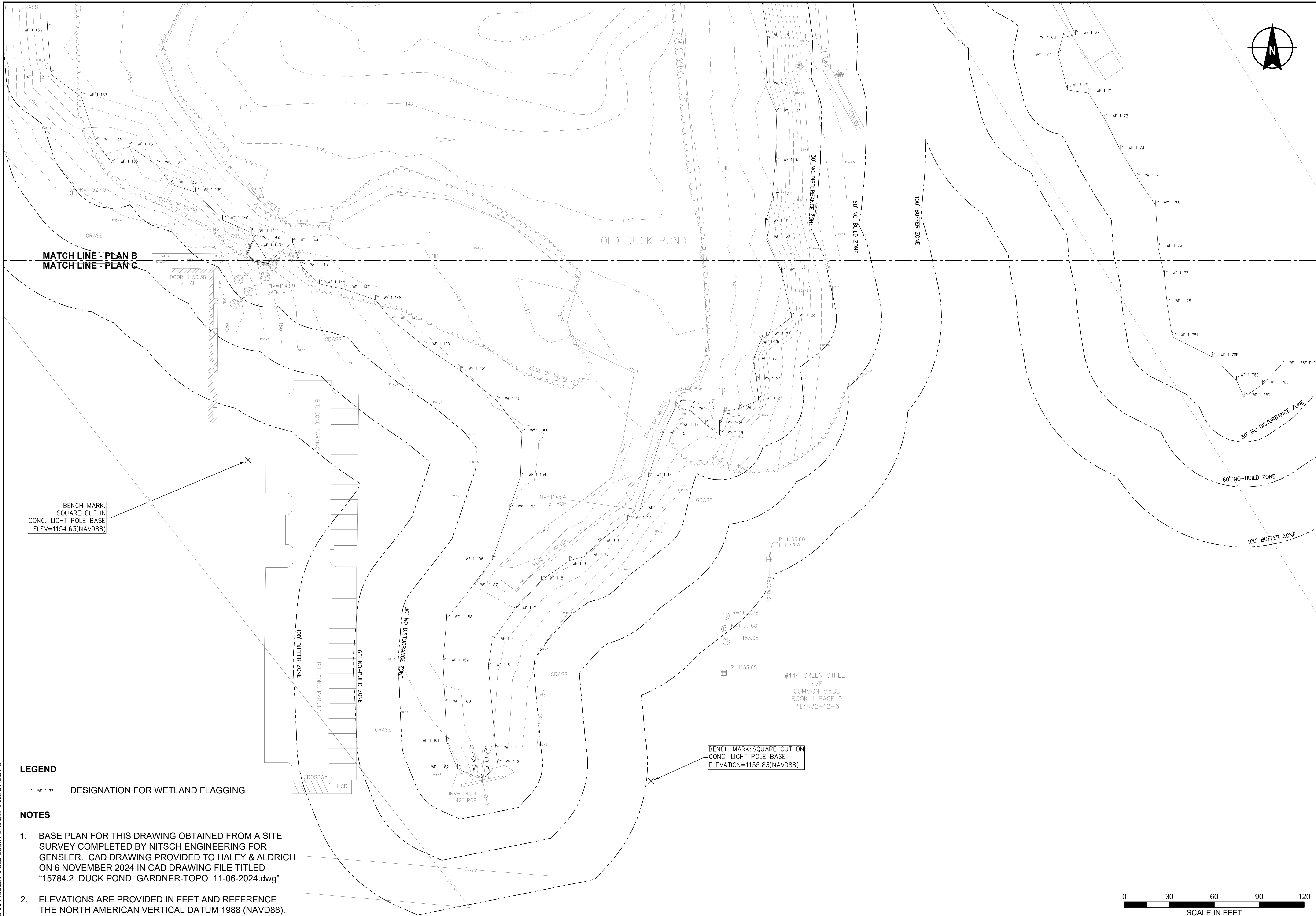
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HA24-SED-201	DESIGNATION AND APPROXIMATE LOCATION OF SEDIMENT PROBE COMPLETED BY TG&B MARINE SERVICES ON 12 NOVEMBER 2024
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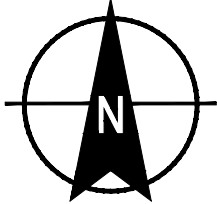


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OLD DUCK POND DAM
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EXISTING
CONDITIONS
PLAN C



CATHERINE D. HOUGH
AND JOSHUA J. HOUGH
BOOK 57424 PAGE 352
PID: R37-23-19

BENCH MARK: MAG SPIKE IN
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ELEVATION=1138.60(NAVD88)

INV=1131.9
24" CPP

INV=1133.5
24" CPP

R=1137.84
A=1134.8
B=1134.7

#74 KELTON STREET
N/F
TYLER D. RICHARD
BOOK 62582 PAGE 97
PID: R37-23-18

R=1140.28
I A,B=1137.4

BENCH MARK: MAG SPIKE
ON 30" OAK
ELEVATION=1149.01(NAVD88)

LEGEND

HA24-101

HA24-SED-201 ▼

WF 2 37

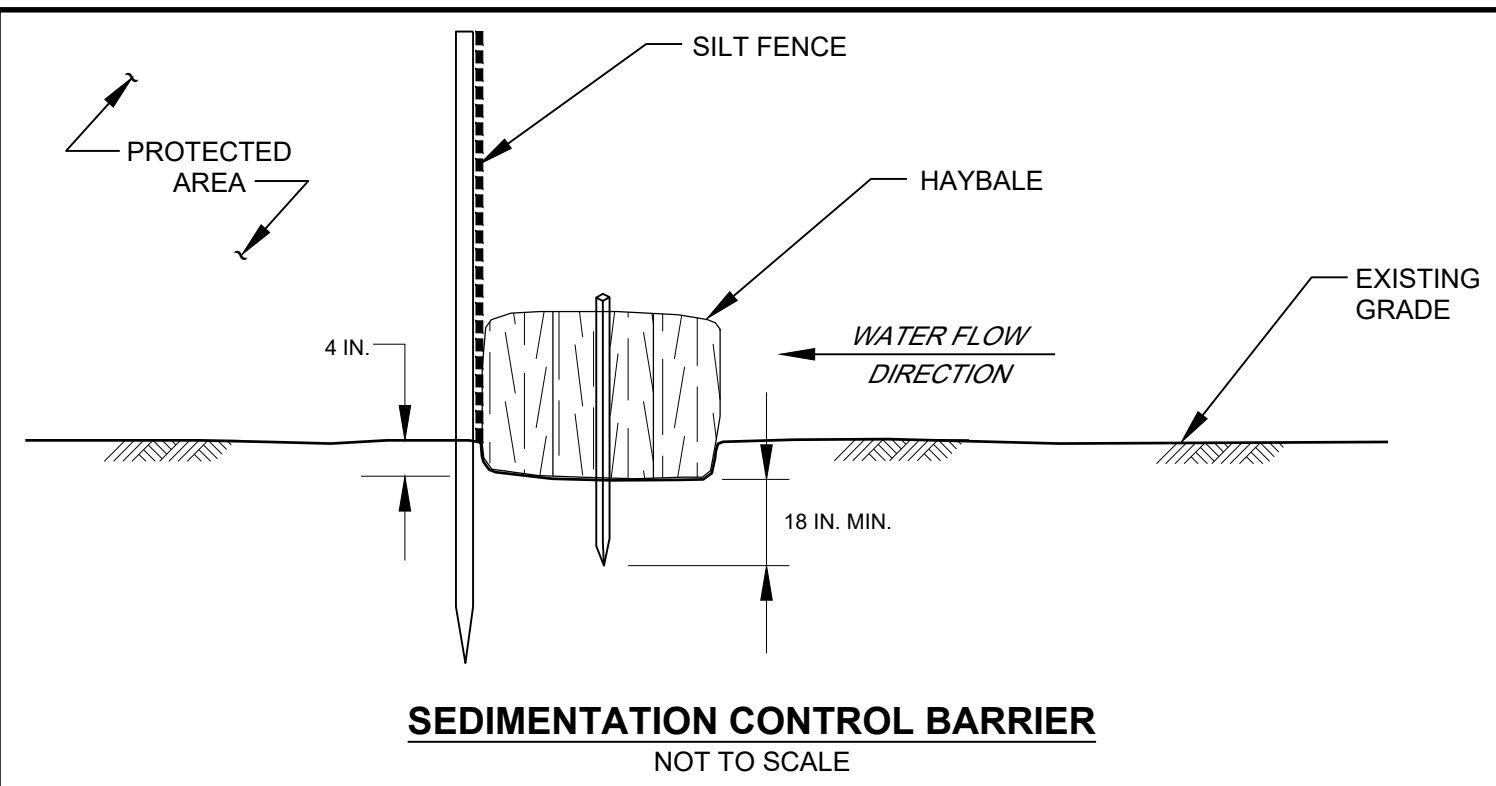
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DESIGNATION FOR WETLAND FLAGGING

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BREACH
Gardner, Massachusetts

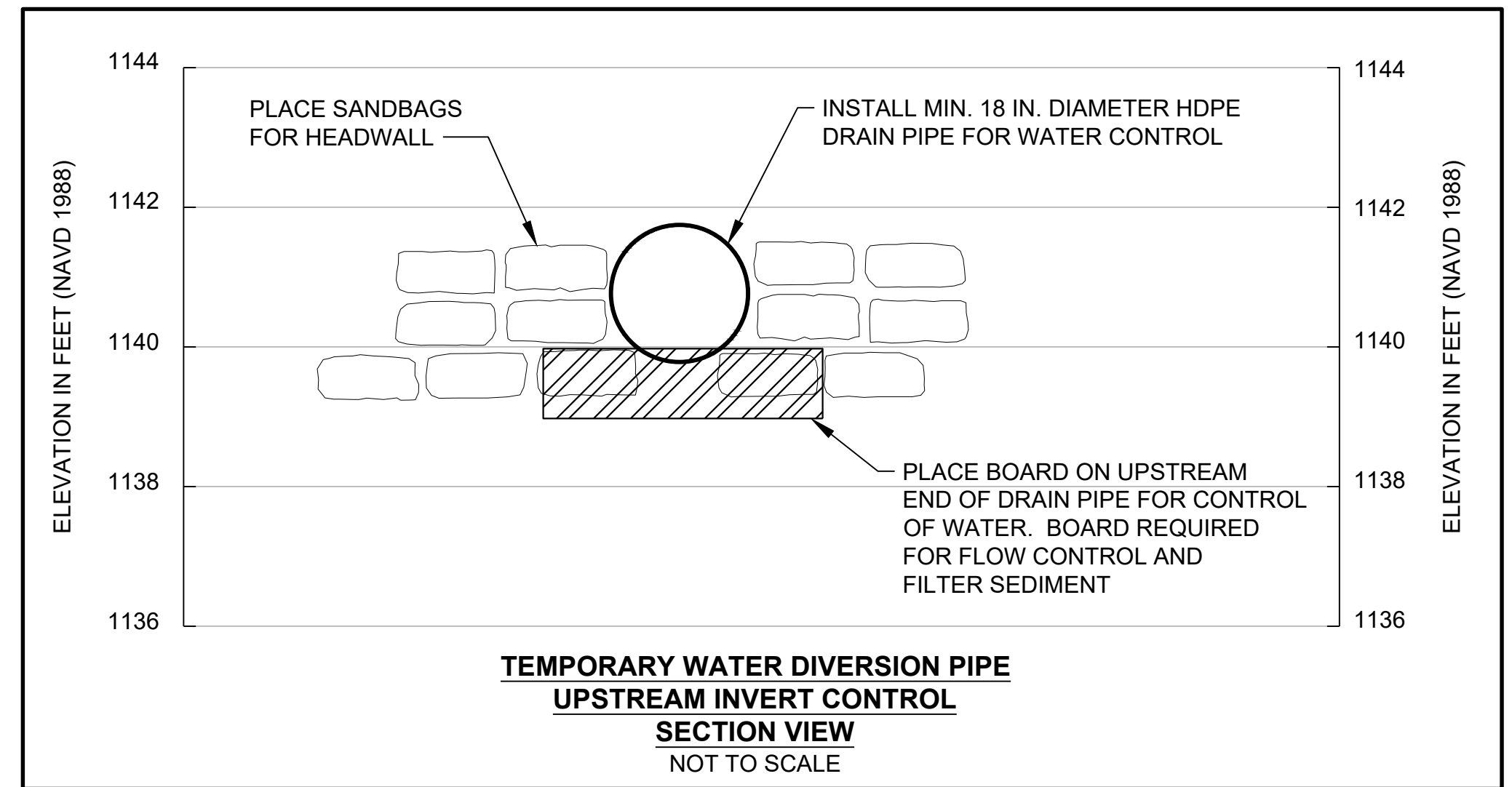
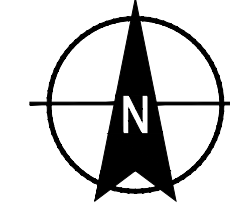
EROSION
CONTROL
PLAN

C-5

Sheet: 7 of 18

1. INSTALL PUMP AND PUMP WATER LEVEL TO EL. 1142. MAINTAIN WATER AT EL. 1142.
2. INSTALL COFFERDAM PHASE 1.
3. INSTALL MINIMUM 5000 GALLON SEDIMENTATION TANK.
4. EXCAVATE TRENCH AND INSTALL AND BACKFILL TEMPORARY BYPASS PIPE WITH CONTROL BOARD.
5. REMOVE COFFERDAM PHASE 1 TO ALLOW WATER THROUGH TEMPORARY BYPASS PIPE WITH CONTROL BOARD IN-PLACE.
6. INSTALL COFFERDAM PHASE 2 TO ALLOW CONSTRUCTION IN THE DRY.
7. MAINTAIN POND WATER LEVEL BETWEEN EL. 1139 AND EL. 1142 DURING CONSTRUCTION TO ALLOW CONSTRUCTION IN THE DRY.
8. WATER COLLECTED WITHIN THE WORK ZONE SHALL BE DISCHARGED TO THE SEDIMENTATION TANK.
9. COFFERDAMS SHALL CONSIST OF FLEXIBLE MEMBRANE TYPE (PORT-A-DAM) OR SANDBAGS. EARTHEN BERM COFFERDAMS PROHIBITED.
10. MAXIMUM ALLOWED RATE OF POND WATER LOWERING IS 6 INCHES PER 24 HOURS DURING ALL DEWATERING PHASES.


BENCH MARK: MAG SPIKE IN
UTILITY POLE
ELEVATION=1138.60(NAVD88)



**TEMPORARY CONSTRUCTION
SEDIMENTATION TANK MINIMUM
5000 GAL. TANK FOR
CONSTRUCTION DEWATERING
OF WORK AREA (NOT REQUIRED
FOR POND DISCHARGE)**

TEMPORARY BYPASS PIPE
18 IN. DIA. CORRUGATED
HDPE DRAIN PIPE WITH
UPSTREAM CONTROL BOARD

**PUMP AND MAINTAIN
WATER LEVEL AT
EL.1139 TO 1142 DURING
CONSTRUCTION**

HA24-101 

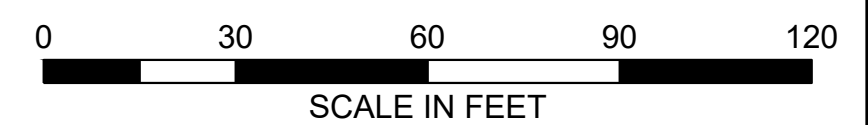
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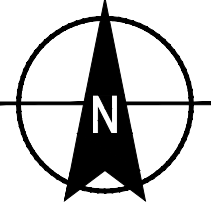
OLD DUCK POND DAM BREACH

Gardner, Massachusetts

WATER CONTROL PLAN

C-6

Sheet: 8 of 18



CATHERINE D. HOUGH
AND JOSHUA J. HOUGH
BOOK 57424 PAGE 352
PID: R37-23-19

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N/F
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BENCH MARK: MAG SPIKE
ON 30" OAK
ELEVATION=1149.01 (NAVD88)

LEGEND

HA24-101

HA24-SED-201 ▼

WF 2 37

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DESIGNATION FOR WETLAND FLAGGING

#444 GREEN STREET
N/F
COMMON MASS
BOOK 1 PAGE 0
PID: R32-12-6

CLEAR BRUSH AND
TREES FOR NEW
CULVERT
CONSTRUCTION

HA24-101

HA24-102

HA24-103

HA24-104

HA24-SED-201 ▼

HA24-SED-202 ▼

HA24-SED-203 ▼

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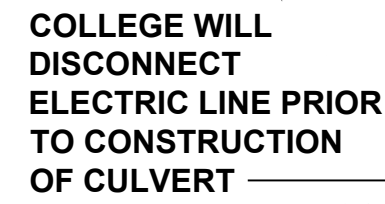
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OLD DUCK POND DAM
BREACH
Gardner, Massachusetts

DEMOLITION
PLAN

C-7

Sheet: 9 of 18

HA24-101

WF 2 37

WF 2 37

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OLD DUCK POND DAM
BREACH

Gardner, Massachusetts

CULVERT LAYOUT

Sheet: 11 of 18

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SCALE IN FEET

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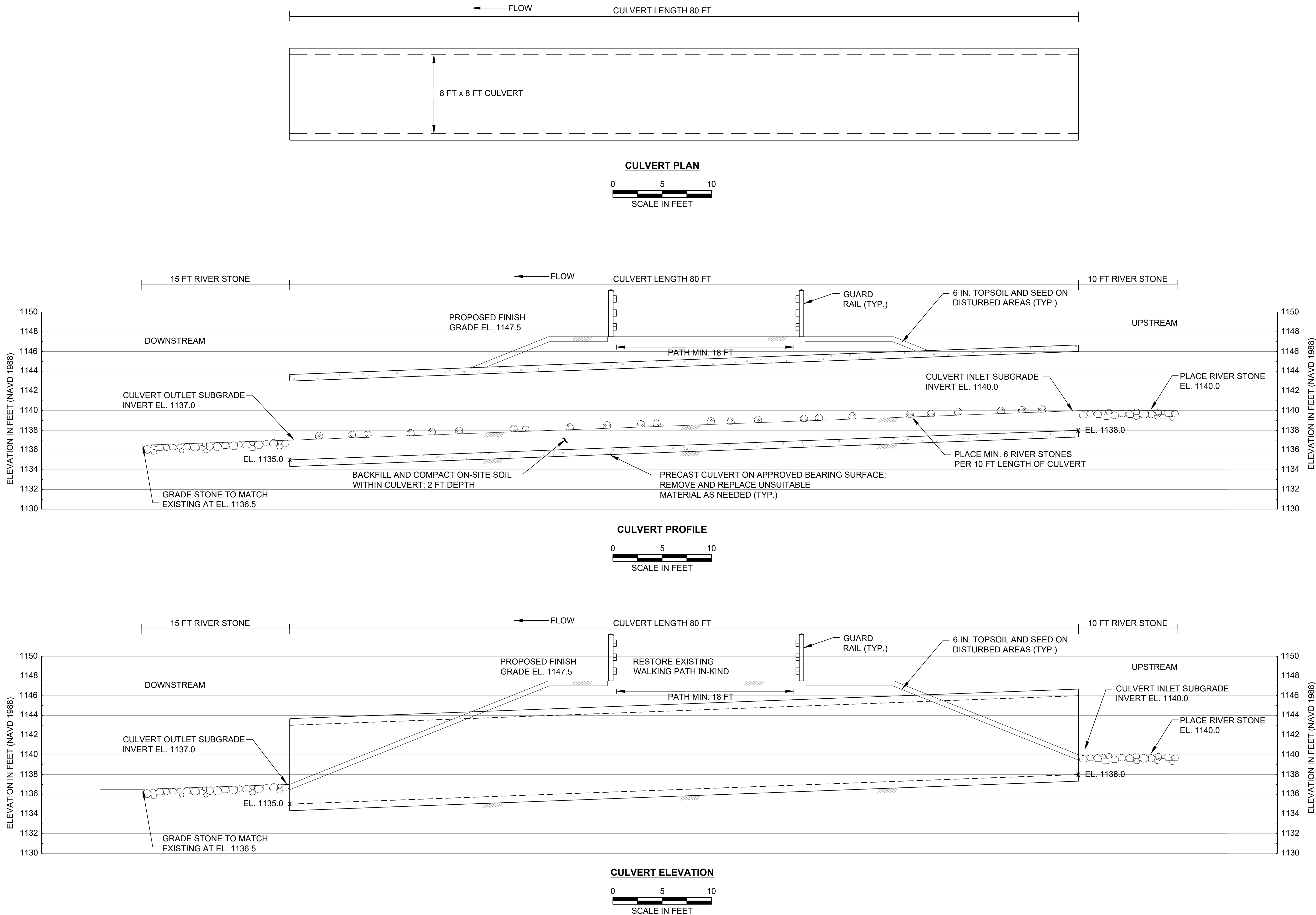
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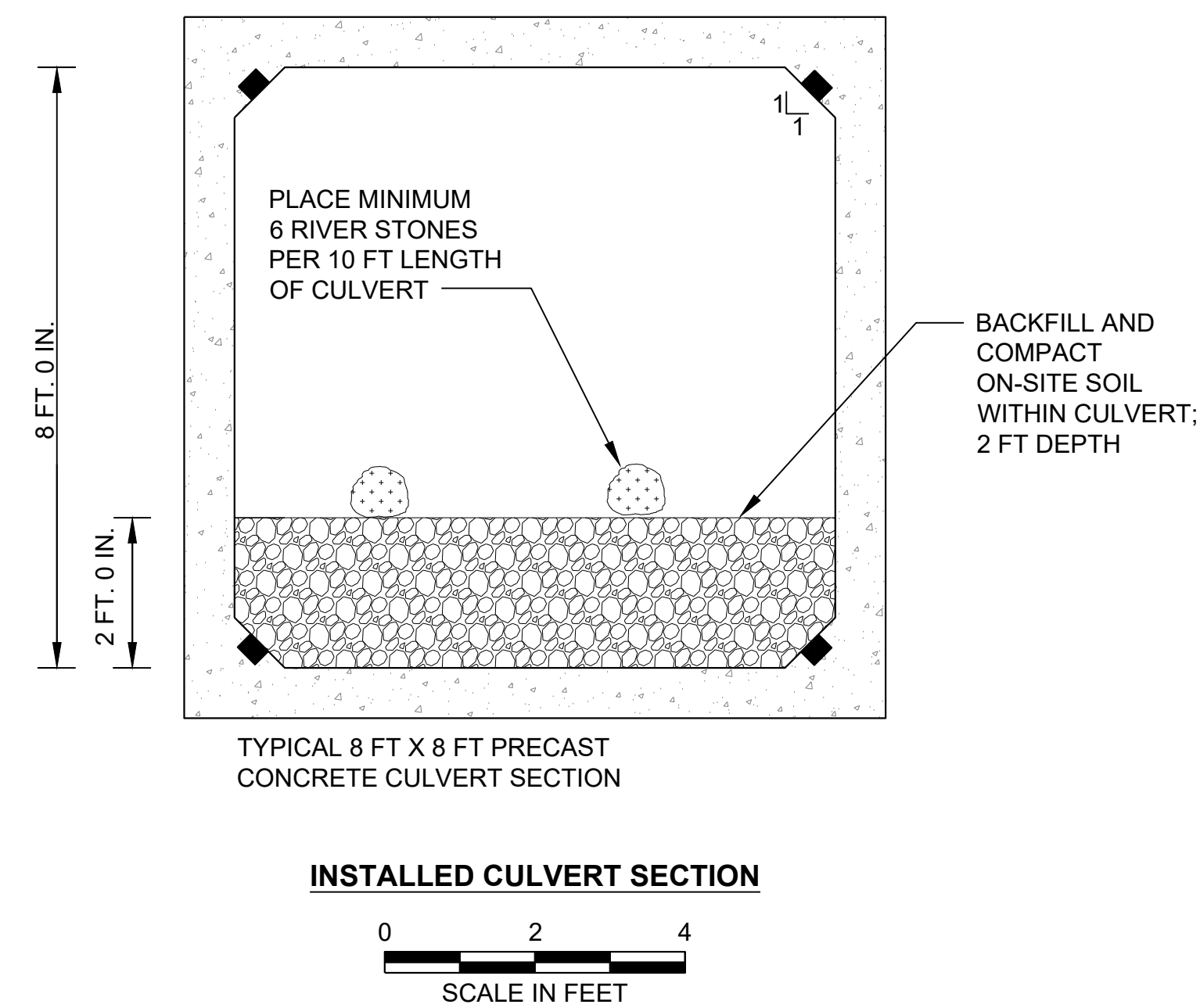
OLD DUCK POND DAM
BREACH

Gardner, Massachusetts

CULVERT PLAN
AND PROFILE

C-10
Sheet: 12 of 18





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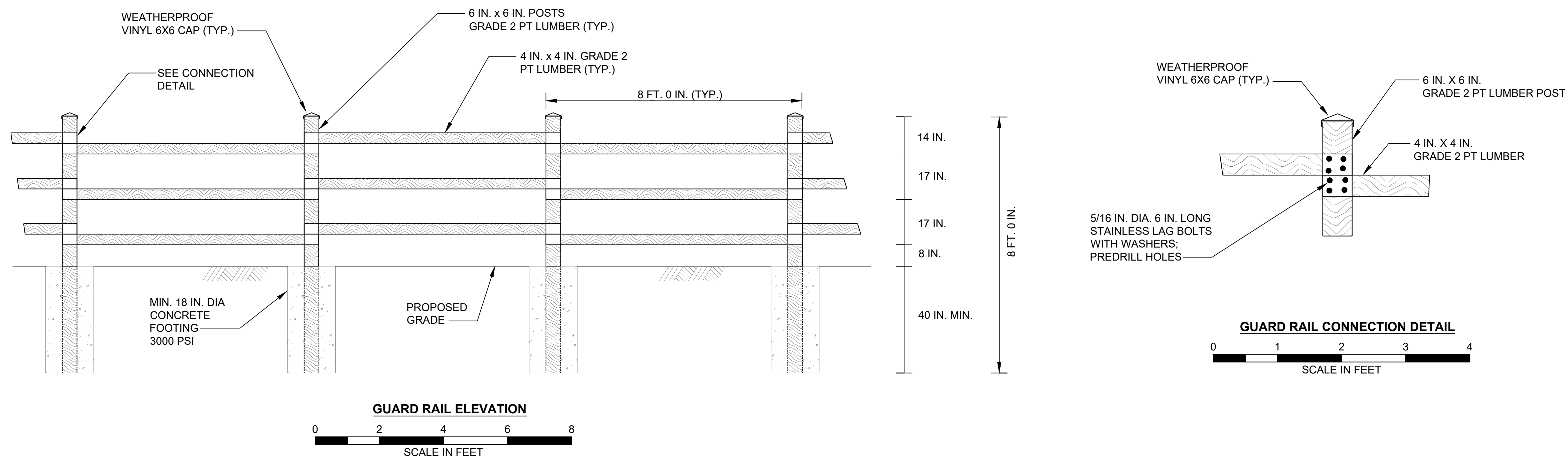
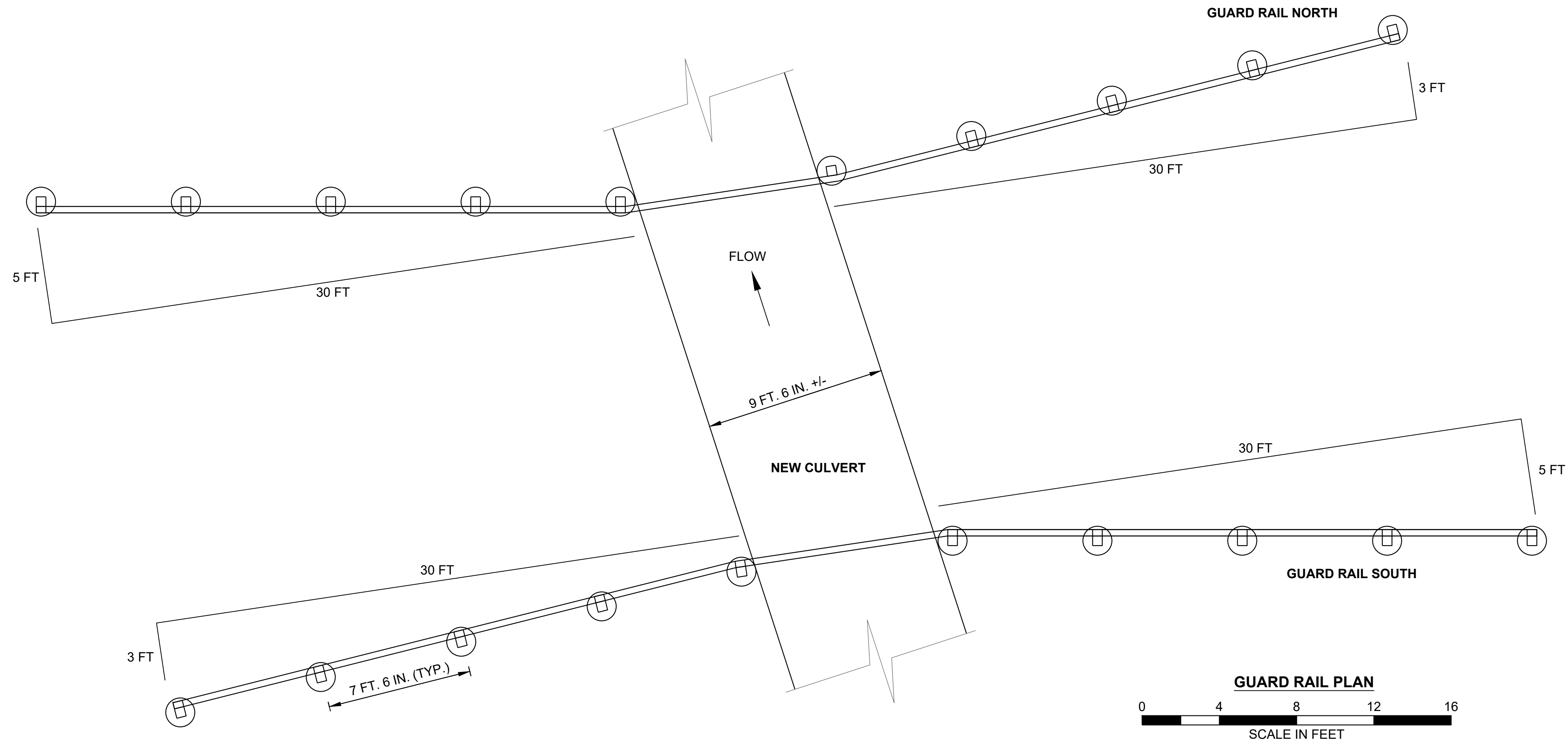
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Gardner, Massachusetts

CULVERT SECTION

C-11



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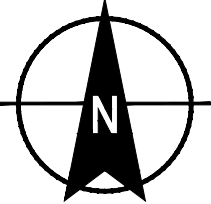
OLD DUCK POND DAM
BREACH

Gardner, Massachusetts

GUARD RAIL
DETAILS

C-12

Sheet: 14 of 18



CATHERINE D. HOUGH
AND JOSHUA J. HOUGH
BOOK 57424 PAGE 352
PID:R37-23-19

BENCH MARK:MAG SPIKE IN
UTILITY POLE
ELEVATION=1138.60(NAVD88)

PLANTING SCHEDULE

ZONE 1 - SCRUB SHRUB WETLAND		1.0 ACRES
TO BE SPACED APPROXIMATELY 8 FT ON CENTER, MIXED SPECIES, OVER ENTIRE AREA		
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE: QUANTITY
CORNUS SERICEA	RED TWIG DOGWOOD	2-3 FT 140
ILEX VERTICILLATA	WINTERBERRY	2-3 FT 140
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	2-3 FT 70
ARONIA ARBUTIFOLIA	RED CHOKEBERRY	2-3 FT 140
SAMBUCUS CANADENSIS	COMMON ELDER	2-3 FT 140
ROSA VIRGINIANA	VIRGINIA ROSE	2-3 FT 70

ZONE 2 - RIPARIAN FOREST		1.8 ACRES
TO BE SPACED APPROXIMATELY 10 FT ON CENTER, MIXED SPECIES, OVER ENTIRE AREA		
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE: QUANTITY
ACER RUBRUM	RED MAPLE	3-5 FT 80
ACER SACCHARINUM	SILVER MAPLE	3-5 FT 80
AMELANCHIER CANADENSIS	SHADE BUSH	3-4 FT 100
BETULA NIGRA	RIVER BIRCH	3-5 FT 80
CORNUS SERICEA	RED TWIG DOGWOOD	2-3 FT 100
ILEX VERTICILLATA	WINTERBERRY	2-3 FT 80
LINDERA BENZOIN	SPICE BUSH	2-3 FT 100
QUERCUS BICOLOR	SWAMP WHITE OAK	3-5 FT 80
VIBURNUM DENTATUM	ARROWWOOD	2-3 FT 100

NEW ENGLAND WETLAND SEED MIX TO BE SOWN OVER EXPOSED POND BOTTOM. 3.0 ACRES

LIVE STAKES

LIVE STAKES TO BE PLACED APPROXIMATELY 8 FT ON CENTER, MIXED SPECIES, WITHIN 5 FT FROM NEW BANK OF LOWERED POND.		1400 LINEAR FEET	PLACEMENT FROM	
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE: QUANTITY	WATER EDGE	
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	36 IN. LIVE STAKE 40	0-3 FT	
SALIX DISCOLOR	PUSSY WILLOW	36 IN. LIVE STAKE 40	1-3 FT	
SALIX NIGRA	BLACK WILLOW	36 IN. LIVE STAKE 40	0-5 FT	
SAMBUCUS CANADENSIS	COMMON ELDER	36 IN. LIVE STAKE 40	2-5 FT	
VIBURNUM DENTATUM	ARROWWOOD	36 IN. LIVE STAKE 20	3-5 FT	

LEGEND

HA24-101

DESIGNATION AND APPROXIMATE LOCATION OF
TEST BORING COMPLETED BY GEOLOGIC
EARTH EXPLORATIONS, INC. BETWEEN 18 AND
23 SEPTEMBER 2024

HA24-SED-201

DESIGNATION AND APPROXIMATE LOCATION OF
SEDIMENT PROBE COMPLETED BY TG&B
MARINE SERVICES ON 12 NOVEMBER 2024

WF 2 37

DESIGNATION FOR WETLAND FLAGGING

**HALEY
ALDRICH**

HALEY & ALDRICH, INC.
465 Medford Street, Suite 2200
Boston, MA 02129-1400
Tel: 617.886.7400
www.haleyaldrich.com

Project No.: 29913-028
Scale: AS SHOWN
Date: 9 JANUARY 2025
Drawn By: DTE
Designed By: DJB
Checked By: DJB
Approved By: DJB
Stamp:

2	BID SET	DJB	5/30/2025
1	PERMIT SET	DJB	1/9/2025
Rev.	Description	By	Date

OLD DUCK POND DAM
BREACH
Gardner, Massachusetts

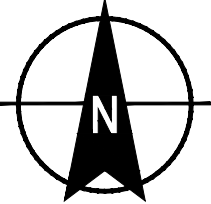
PLANTING
PLAN A

C-13A

Sheet: 15 of 18

NOTES

- BASE PLAN FOR THIS DRAWING OBTAINED FROM A SITE SURVEY COMPLETED BY NITSCH ENGINEERING FOR GENSLER. CAD DRAWING PROVIDED TO HALEY & ALDRICH ON 6 NOVEMBER 2024 IN CAD DRAWING FILE TITLED "15784.2_DUCK POND_GARDNER-TOPO_11-06-2024.dwg"
- ELEVATIONS ARE PROVIDED IN FEET AND REFERENCE THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).



PLANTING SCHEDULE

ZONE 1 - SCRUB SHRUB WETLAND		1.0 ACRES	
TO BE SPACED APPROXIMATELY 8 FT ON CENTER, MIXED SPECIES, OVER ENTIRE AREA			
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE:	QUANTITY
CORNUS SERICEA	RED TWIG DOGWOOD	2-3 FT	140
ILEX VERTICILLATA	WINTERBERRY	2-3 FT	140
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	2-3 FT	70
ARONIA ARBUTIFOLIA	RED CHOKEBERRY	2-3 FT	140
SAMBUCUS CANADENSIS	COMMON ELDER	2-3 FT	140
ROSA VIRGINIANA	VIRGINIA ROSE	2-3 FT	70

ZONE 2 - RIPARIAN FOREST		1.8 ACRES	
TO BE SPACED APPROXIMATELY 10 FT ON CENTER, MIXED SPECIES, OVER ENTIRE AREA			
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE:	QUANTITY
ACER RUBRUM	RED MAPLE	3-5 FT	80
ACER SACCHARINUM	SILVER MAPLE	3-5 FT	80
AMELANCHIER CANADENSIS	SHADE BUSH	3-4 FT	100
BETULA NIGRA	RIVER BIRCH	3-5 FT	80
CORNUS SERICEA	RED TWIG DOGWOOD	2-3 FT	100
ILEX VERTICILLATA	WINTERBERRY	2-3 FT	80
LINDERA BENZOIN	SPICE BUSH	2-3 FT	100
QUERCUS BICOLOR	SWAMP WHITE OAK	3-5 FT	80
VIBURNUM DENTATUM	ARROWWOOD	2-3 FT	100

NEW ENGLAND WETLAND SEED MIX TO BE SOWN OVER EXPOSED POND BOTTOM. 3.0 ACRES

LIVE STAKES				
LIVE STAKES TO BE PLACED APPROXIMATELY 8 FT ON CENTER, MIXED SPECIES, WITHIN 5 FT FROM NEW BANK OF LOWERED POND.				
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE:	QUANTITY	PLACEMENT FROM WATER EDGE
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	36 IN. LIVE STAKE	40	0-3 FT
SALIX DISCOLOR	PUSSY WILLOW	36 IN. LIVE STAKE	40	1-3 FT
SALIX NIGRA	BLACK WILLOW	36 IN. LIVE STAKE	40	0-5 FT
SAMBUCUS CANADENSIS	COMMON ELDER	36 IN. LIVE STAKE	40	2-5 FT
VIBURNUM DENTATUM	ARROWWOOD	36 IN. LIVE STAKE	20	3-5 FT

MATCH LINE - PLAN A
MATCH LINE - PLAN B

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OLD DUCK POND DAM
BREACH
Gardner, Massachusetts

PLANTING
PLAN B

C-13B

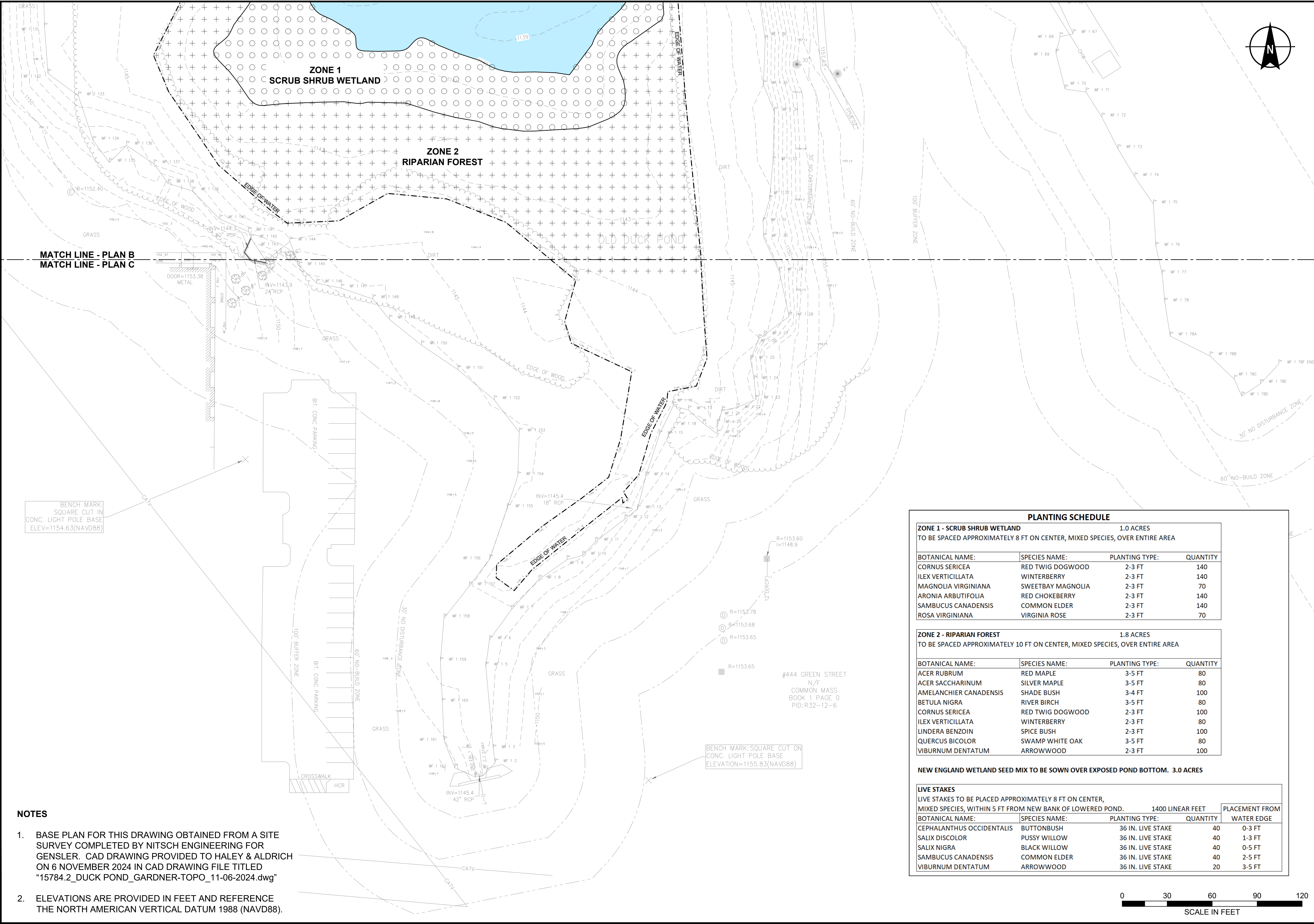
Sheet: 16 of 18

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MATCH LINE - PLAN B
MATCH LINE - PLAN C

0 30 60 90 120
SCALE IN FEET



MATCH LINE - PLAN B
MATCH LINE - PLAN C

BENCH MARK:
SQUARE CUT IN
CONC. LIGHT POLE BASE
ELEV=1154.63(NAVD88)

BENCH MARK: SQUARE CUT ON
CONC. LIGHT POLE BASE
ELEVATION=1155.83(NAVD88)

NOTES

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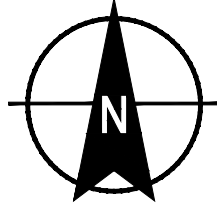
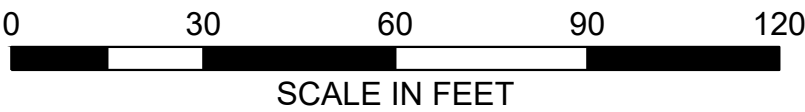
PLANTING SCHEDULE

ZONE 1 - SCRUB SHRUB WETLAND		1.0 ACRES	
TO BE SPACED APPROXIMATELY 8 FT ON CENTER, MIXED SPECIES, OVER ENTIRE AREA			
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE:	QUANTITY
CORNUS SERICEA	RED TWIG DOGWOOD	2-3 FT	140
ILEX VERTICILLATA	WINTERBERRY	2-3 FT	140
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	2-3 FT	70
ARONIA ARBUTIFOLIA	RED CHOKEBERRY	2-3 FT	140
SAMBUCUS CANADENSIS	COMMON ELDER	2-3 FT	140
ROSA VIRGINIANA	VIRGINIA ROSE	2-3 FT	70

ZONE 2 - RIPARIAN FOREST		1.8 ACRES	
TO BE SPACED APPROXIMATELY 10 FT ON CENTER, MIXED SPECIES, OVER ENTIRE AREA			
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE:	QUANTITY
ACER RUBRUM	RED MAPLE	3-5 FT	80
ACER SACCHARINUM	SILVER MAPLE	3-5 FT	80
AMELANCHIER CANADENSIS	SHADE BUSH	3-4 FT	100
BETULA NIGRA	RIVER BIRCH	3-5 FT	80
CORNUS SERICEA	RED TWIG DOGWOOD	2-3 FT	100
ILEX VERTICILLATA	WINTERBERRY	2-3 FT	80
LINDERA BENZOIN	SPICE BUSH	2-3 FT	100
QUERCUS BICOLOR	SWAMP WHITE OAK	3-5 FT	80
VIBURNUM DENTATUM	ARROWWOOD	2-3 FT	100

NEW ENGLAND WETLAND SEED MIX TO BE SOWN OVER EXPOSED POND BOTTOM. 3.0 ACRES

LIVE STAKES				1400 LINEAR FEET		PLACEMENT FROM	
MIXED SPECIES, WITHIN 5 FT FROM NEW BANK OF LOWERED POND.							
BOTANICAL NAME:	SPECIES NAME:	PLANTING TYPE:	QUANTITY			WATER EDGE	
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	36 IN. LIVE STAKE	40			0-3 FT	
SALIX DISCOLOR	PUSSY WILLOW	36 IN. LIVE STAKE	40			1-3 FT	
SALIX NIGRA	BLACK WILLOW	36 IN. LIVE STAKE	40			0-5 FT	
SAMBUCUS CANADENSIS	COMMON ELDER	36 IN. LIVE STAKE	40			2-5 FT	
VIBURNUM DENTATUM	ARROWWOOD	36 IN. LIVE STAKE	20			3-5 FT	



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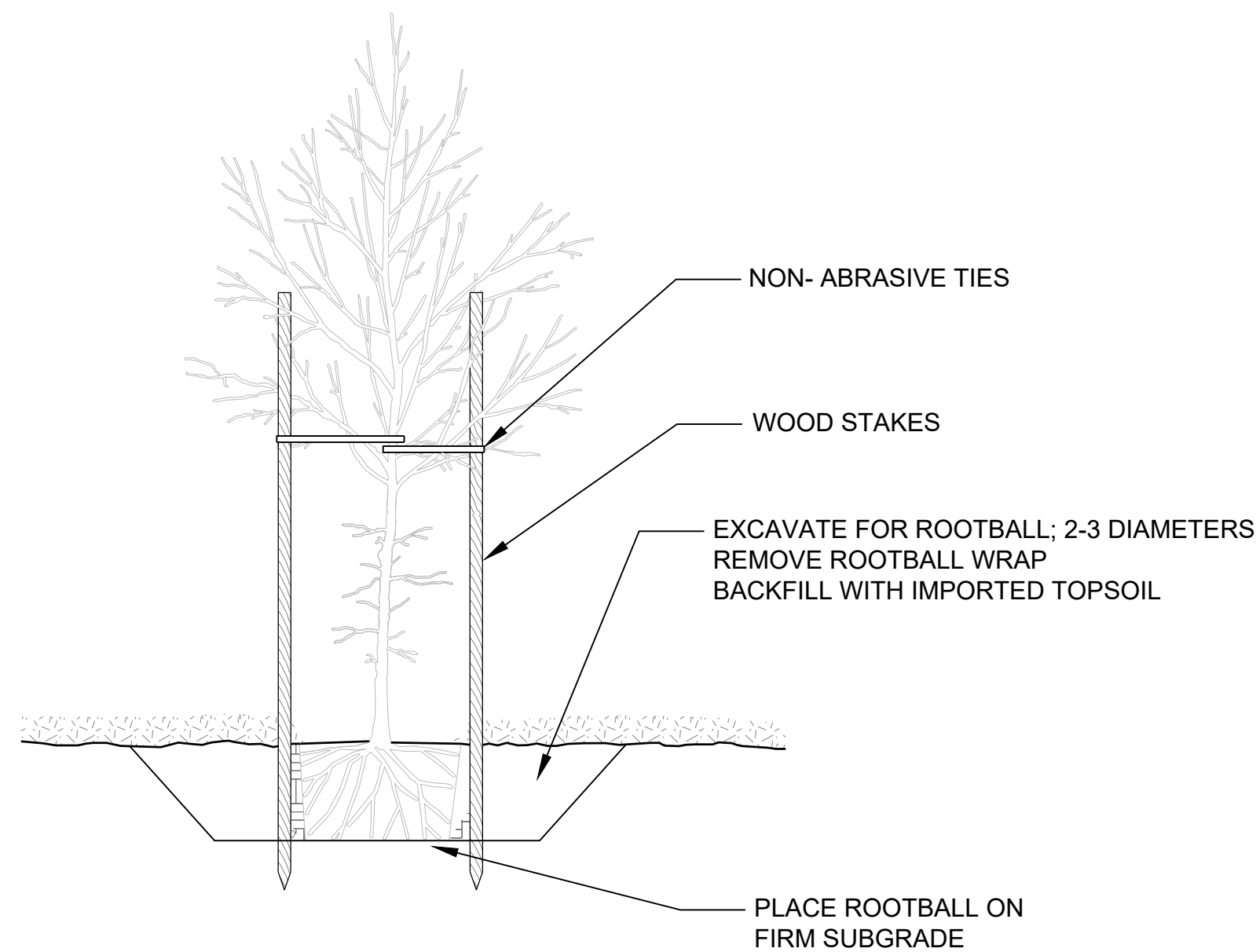
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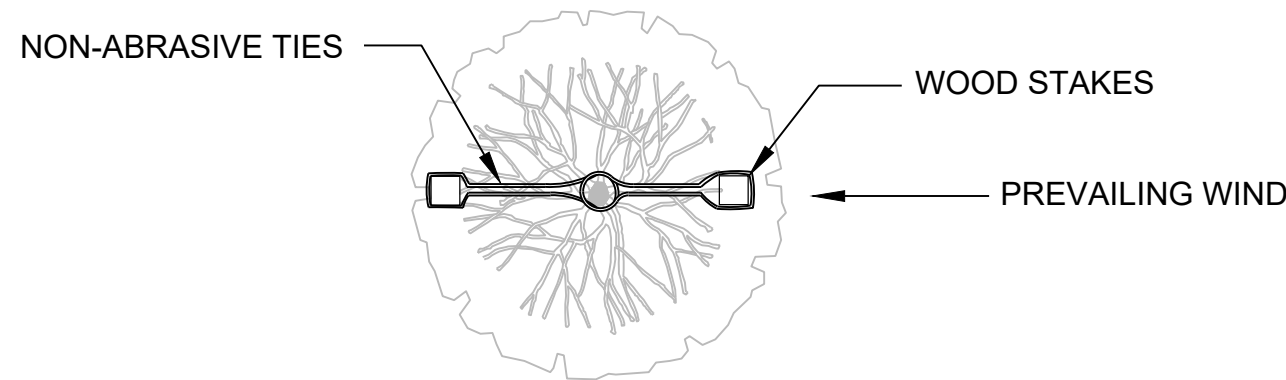
PLANTING
PLAN C

C-13C

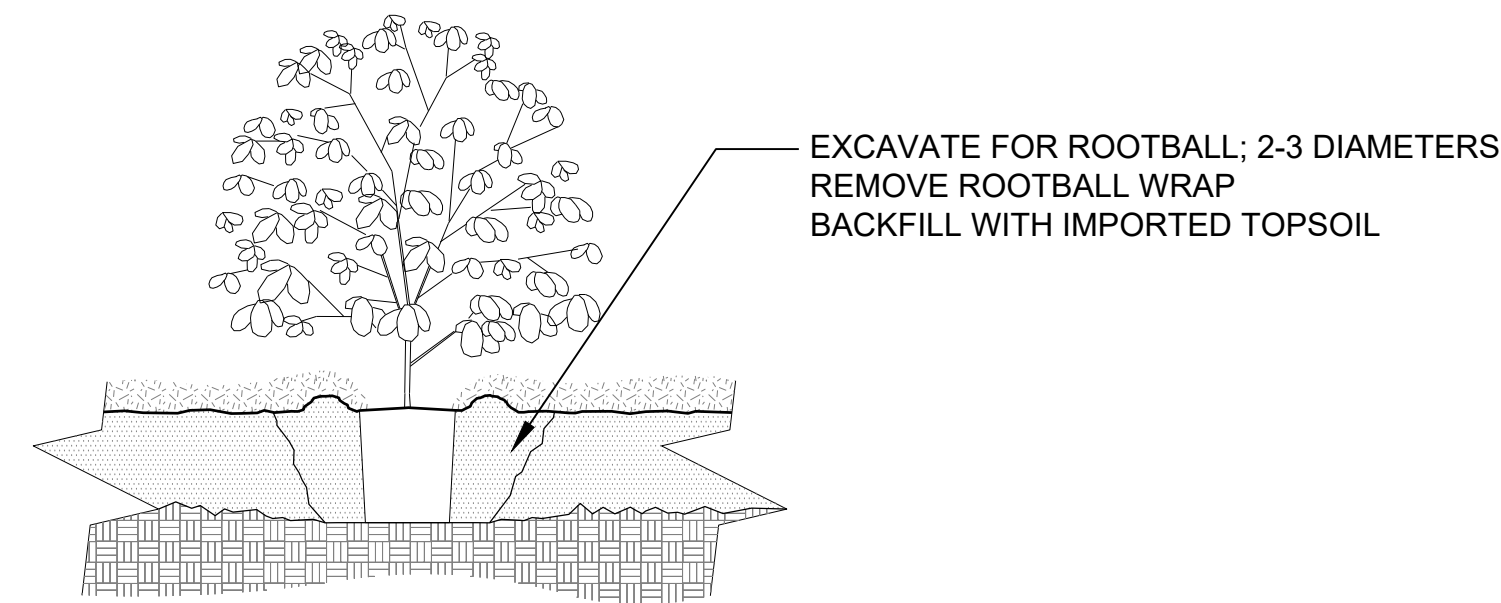
Sheet: 17 of 18



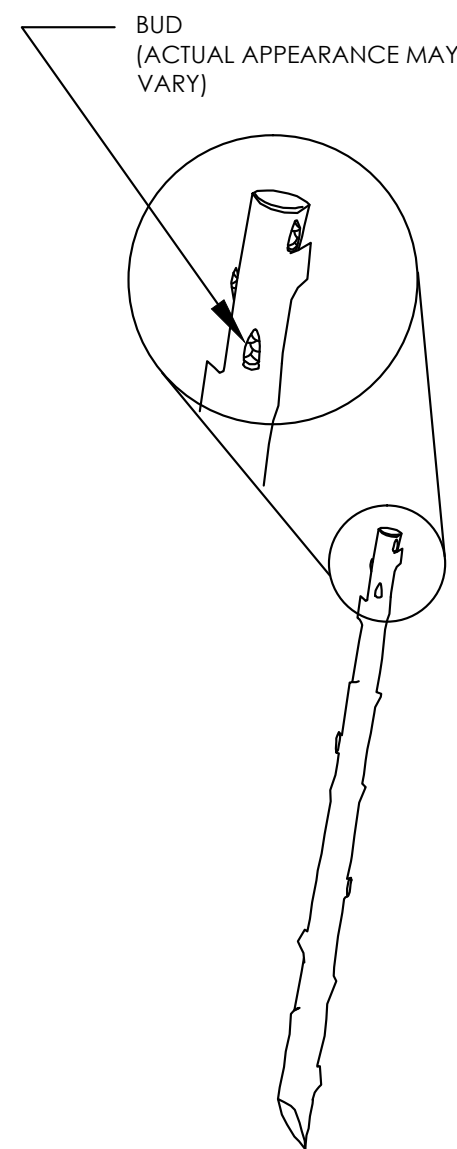
TREE PLANTING DETAIL
SECTION VIEW
NOT TO SCALE



TREE SUPPORT
PLAN VIEW
NOT TO SCALE



SHRUB PLANTING DETAIL
SECTION VIEW
NOT TO SCALE



- LIVE STAKE STORAGE, PREPARATION, INSTALLATION SPECIFICATIONS
NOTE: LIVE STAKES MUST BE INSTALLED WHILE DORMANT, BETWEEN NOVEMBER 15TH AND MARCH 1ST. WHEN INSTALLATION WILL TAKE PLACE DURING THE ACTIVE GROWING SEASON, LIVE STAKES MAY NOT BE USED.
- STORAGE AND TRANSPORTATION:**
- KEEP COOL AND DAMP DURING STORAGE AND TRANSPORTATION
 - INSTALL AS SOON AS POSSIBLE AFTER HARVEST
- PREPARATION**
- SOAK ENTIRE LENGTH IN WATER FOR A MINIMUM OF 5 DAYS BEFORE INSTALLATION; KEEP MOIST IMMEDIATELY PRIOR TO INSTALLATION
 - BE SURE TO PREPARE MATERIALS RIGHT-SIDE UP; BUDS SHOULD BE POINTING UPWARD
 - BE CAREFUL TO PRESERVE BUDS INTACT
 - CUT TOP AT A VERY SHALLOW ANGLE OR FLAT
 - CUT ROOTING END AT AN ANGLE OF 30-45 DEGREES
 - DO NOT STRIP BARK WHILE CUTTING
 - PREPARE AND INSTALL CUTTINGS ON THE SAME DAY
- INSTALLATION**
- WHERE POSSIBLE, INSTALL A CUTTING OF A LENGTH THAT WILL REACH NATIVE, UNDISTURBED SOIL
 - CREATE PILOT HOLE USING REBAR FOR MATERIALS LONGER THAN ONE FOOT; HAND PLACE CUTTINGS IN PILOT HOLES
 - BURY ¾ OF CUTTING'S FULL LENGTH INTO THE GROUND. IF USING A DEAD WEIGHT HAMMER TO TAMP; HAMMER HEAD SHOULD BE FILLED WITH SHOT OR SAND
 - IF CUTTING SPLITS OR TOP OF CUTTING "MUSHROOMS" DUE TO TAMPING, REPLACE CUTTING
 - CLEANLY CUT TOP FLAT TO LEAVE 3-4 INCHES AND TWO INTACT BUDS ABOVE THE GROUND
 - FIRMLY TAMP SOIL AROUND CUTTING
 - CREATE A SMALL DEPRESSION AROUND CUTTING TO COLLECT RAINWATER
 - WATER THOROUGHLY
 - FOR CUTTINGS NOT INSTALLED IN PERMANENTLY MOIST SOIL: WATER THOROUGHLY A MINIMUM OF ONCE A WEEK FOR A MINIMUM OF SIX WEEKS AFTER INSTALLATION

LIVE STAKE DETAIL
NOT TO SCALE

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PLANTING
DETAILS