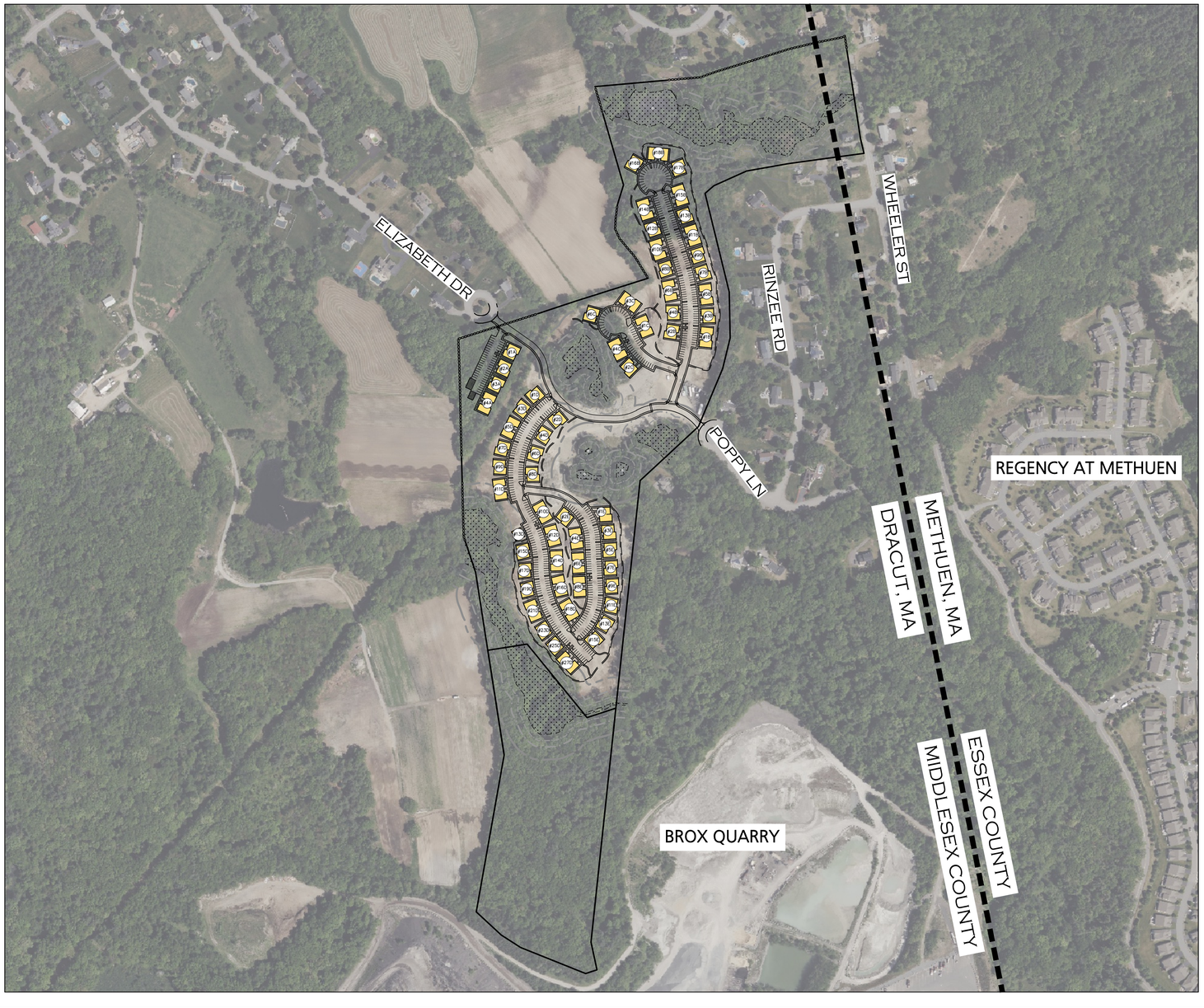
COMPREHENSIVE PERMIT SITE PLAN

FOR

MURPHY'S FARM

231 WHEELER STREET
(MAP 22 / LOT 53) &
(MAP 39 / BLOCK 53 / LOTS 1-23)
DRACUT, MASSACHUSETTS 01826



200 0 100 200

(IN FEET)
1"=200'

LAND USE TABLE

LOCATION:	MAP 22 / LOT 53 & MAP 39 / BLOCK 53 / LOTS 1–23
ZONE:	RESIDENTIAL 1 (R–1)
USE:	MULTI–FAMILY RESIDENTIAL

ITEM	REQURIED	PROVIDED
MINIMUM LOT AREA	40,000–SF	33.30–AC
MINIMUM LOT FRONTAGE	175–FT	60–FT (ELIZABETH DR) 52–FT (POPPY LN)
MINIMUM FRONT SETBACK	30–FT	78–FT
MINIMUM SIDE SETBACK	15–FT	21.8–FT
MINIMUM REAR SETBACK	35–FT	21.8–FT (TBD)
MAXIMUM BUILDING HEIGHT	36–FT 2.5 STORIES	<36–FT <2.5 STORIES

PARKING CALCULATIONS:

MULTIFAMILY RESIDENTIAL : 268 X (2 SPACE / UNIT)
536–SPACES REQUIRED
569–SPACE PROVIDED
12 ACCESSIBLE SPACES PROVIDED

AREA SUMMARY:

–TOTAL LOT AREA: 33.30–AC
–TOTAL WETLAND AREA: 3.04–AC
–TOTAL UPLAND AREA: 30.26–AC

DEVELOPMENT SUMMARY:

–TOTAL ROADWAY LENGTH: 4,726–FT
–NUMBER OF BUILDINGS: 63
–NUMBER OF UNITS: 268
–NUMBER OF BEDROOMS: 538

PROJECT NOTES:

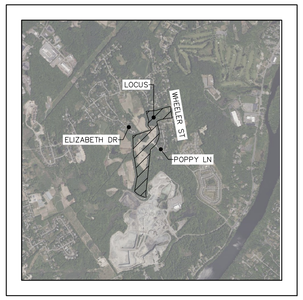
1. LOCATION: 231 WHEELER STREET (PARCEL ID: 22–53)
15 MURPHY WAY (PARCEL ID: 39–53–1)
21 MURPHY WAY (PARCEL ID: 39–53–2)
25 MURPHY WAY (PARCEL ID: 39–53–3)
28 MURPHY WAY (PARCEL ID: 39–53–4)
22 MURPHY WAY (PARCEL ID: 39–53–5)
16 MURPHY WAY (PARCEL ID: 39–53–6)
10 MURPHY WAY (PARCEL ID: 39–53–7)
4 MURPHY WAY (PARCEL ID: 39–53–8)
40 ELIZABETH DRIVE (PARCEL ID: 39–53–9)
34 ELIZABETH DRIVE (PARCEL ID: 39–53–10)
29 ELIZABETH DRIVE (PARCEL ID: 39–53–11)
35 ELIZABETH DRIVE (PARCEL ID: 39–53–12)
41 ELIZABETH DRIVE (PARCEL ID: 39–53–13)
47 ELIZABETH DRIVE (PARCEL ID: 39–53–14)
53 ELIZABETH DRIVE (PARCEL ID: 39–53–15)
59 ELIZABETH DRIVE (PARCEL ID: 39–53–16)
16 MURPHY WAY (PARCEL ID: 39–53–17)
58 ELIZABETH DRIVE (PARCEL ID: 39–53–18)
52 ELIZABETH DRIVE (PARCEL ID: 39–53–19)
46 ELIZABETH DRIVE (PARCEL ID: 39–53–20)
34 ELIZABETH DRIVE (PARCEL ID: 39–53–21)
29 ELIZABETH DRIVE (PARCEL ID: 39–53–22)
70 ELIZABETH DRIVE (PARCEL ID: 39–53–23)
2. DEED: NORTH MIDDLESEX REGISTRY OF DEEDS BOOK 31624 PAGE 254
3. ZONE: RESIDENTIAL 1 (R–1)
4. USE: MULTI FAMILY RESIDENTIAL
5. APPLICANT: THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810
6. OWNER: O'BRIEN HOMES, INC
18 CASSIMERE STREET
ANDOVER, MA 01810
7. SOILS / WETLANDS: NORSE ENVIRONMENTAL SERVICES, INC.
2100 LAKEVIEW AVENUE, UNIT 3A
DRACUT, MA 01826
8. EXISTING CONDITIONS INFORMATION GENERATED FROM RECORD DOCUMENTS AS WELL AS AN ON GROUND SURVEY AND AERIAL SURVEY BY CIVIL DESIGN CONSULTANTS, INC. IN DECEMBER OF 2023 AND JANUARY OF 2024.
9. ALL ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88).
10. TEMPORARY BENCH MARKS SET:
–TBM A: SPIKE IN U–POLE#6 ON POPPY LANE. ELEV.=135.29'
–TBM 1: X–CUT IN CB ON ELIZABETH DRIVE. ELEV.=168.41'
–TBM 2: SPIKE IN TREE 620+/– EAST OF TBM 1. ELEV.=159.52'
–TBM 3: SPIKE IN U–POLE#5 ON POPPY LANE. ELEV.=134.80'
11. PLAN BEARINGS ARE BASED UPON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD83), MAINLAND ZONE.
12. THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD AREA AS DEPICTED BY THE FLOOD INSURANCE RATE MAPS FOR MIDDLESEX COUNTY, MASSACHUSETTS MAP #25017C0153E (EFFECTIVE DATE JUNE 4, 2010) AND MAP #25017C0161E (EFFECTIVE DATE JUNE 4, 2010).
13. WETLANDS WERE DELINEATED BY NORSE ENVIRONMENTAL SERVICES, INC. OF DRACUT IN AUGUST, 2015.
14. THE INTENT OF THIS PLAN SET IS TO MEET THE PRELIMINARY PLAN CONTENT REQUIREMENTS TO ALLOW FOR INITIAL REVIEW OF THE PROPOSED 40B DEVELOPMENT. ADDITIONAL DETAIL MAY BE REQUIRED PRIOR TO ANY CONSTRUCTION.
15. NO BUILDING OR STRUCTURE SHALL BE BUILT OR PLACED WITHOUT A PERMIT FROM THE HEALTH DEPARTMENT IF SUCH A PERMIT IS REQUIRED.

REFERENCE PLANS:

PLANS ON FILE AT THE NORTH MIDDLESEX COUNTY REGISTRY OF DEEDS.

PLAN BOOK 118 PLAN 100
PLAN BOOK 145 PLAN 56
PLAN BOOK 159 PLAN 132
PLAN BOOK 161 PLAN 136
PLAN BOOK 165 PLAN 93
PLAN BOOK 174 PLAN 5
PLAN BOOK 206 PLAN 26
PLAN BOOK 235 PLAN 67
PLAN BOOK 244 PLAN 26

LOCUS MAP
(SCALE: 1"=2,500')



USGS MAP
(SCALE: 1:1,000)

LEGEND

PROPERTY LINE	
BUILDING SETBACK	
CENTERLINE	0+50 1+00
PROPOSED STRUCTURE	
PROPOSED CURB	
PROPOSED PAVEMENT	
PROPOSED CONCRETE	
PROPOSED CONTOUR	140
PROPOSED SPOT GRADE	151.00
PROPOSED SPOT GRADE (TW/BW)	TW:159.57 BW:155.67
PROPOSED DRAIN	
PROPOSED CATCH BASIN	
PROPOSED DRAIN MANHOLE	D
PROPOSED UNDERDRAIN	UD UD UD UD
PROPOSED ROCK RIP–RAP	
PROPOSED SILT FENCE	
PROPOSED RETAINING WALL	
PROPOSED TIMBER GUARDRAIL	
PROPOSED CHAINLINK FENCE	
PROPOSED STOCKADE FENCE	
PROPOSED TREE LINE	
PROPOSED LANDSCAPE AREA	
PROPOSED WATER	W W W W W
PROPOSED GATE VALVE	WV
PROPOSED HYDRANT	
PROPOSED SEWER	S S S S S
PROPOSED SEWER MANHOLE	S
PROPOSED ELECTRIC/TELEPHONE/CABLE	E/T/C E/T/C E/T/C E/T/C
PROPOSED LIGHTING	
PROPOSED EASEMENT	
PROPOSED STRIPING	
PROPOSED PARKING COUNT	18
PROPOSED HANDICAP SPACE	
PROPOSED TRAFFIC ARROW	
PROPOSED SIGN	
PROPOSED LIMIT OF WORK	

PLAN INDEX:

TITLE		LAST REVISED
C–1	COVER SHEET	05/09/25
C–2A	EXISTING CONDITIONS PLAN	05/09/25
C–2B	EXISTING CONDITIONS PLAN	05/09/25
C–3	LAYOUT & MATERIALS PLAN	05/09/25
C–4A	GRADING, DRAINAGE & UTILITIES PLAN	05/09/25
C–4B	GRADING, SEWER & UTILITIES PLAN	05/09/25
C–4C	GRADING & UTILITIES OVERALL PLAN	05/09/25
C–5A	PLAN & PROFILE	05/09/25
C–5B	PLAN & PROFILE	05/09/25
C–5C	PLAN & PROFILE	05/09/25
C–6	EROSION CONTROL PLAN	05/09/25
C–7	FIRE TRUCK TURNING PLAN	05/09/25
C–8A	PLAN OF LAND	03/28/25
C–8B	PLAN OF LAND	03/28/25
D–1	CONSTRUCTION DETAILS	05/09/25
D–2	CONSTRUCTION DETAILS	05/09/25
D–3	CONSTRUCTION DETAILS	05/09/25
D–4	CONSTRUCTION DETAILS	05/09/25
D–5	CONSTRUCTION DETAILS	05/09/25
D–6	CONSTRUCTION DETAILS	05/09/25

ISSUED FOR REVIEW: MAY 9, 2025

DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
REVISIONS	

APPLICANT:
THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:
MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

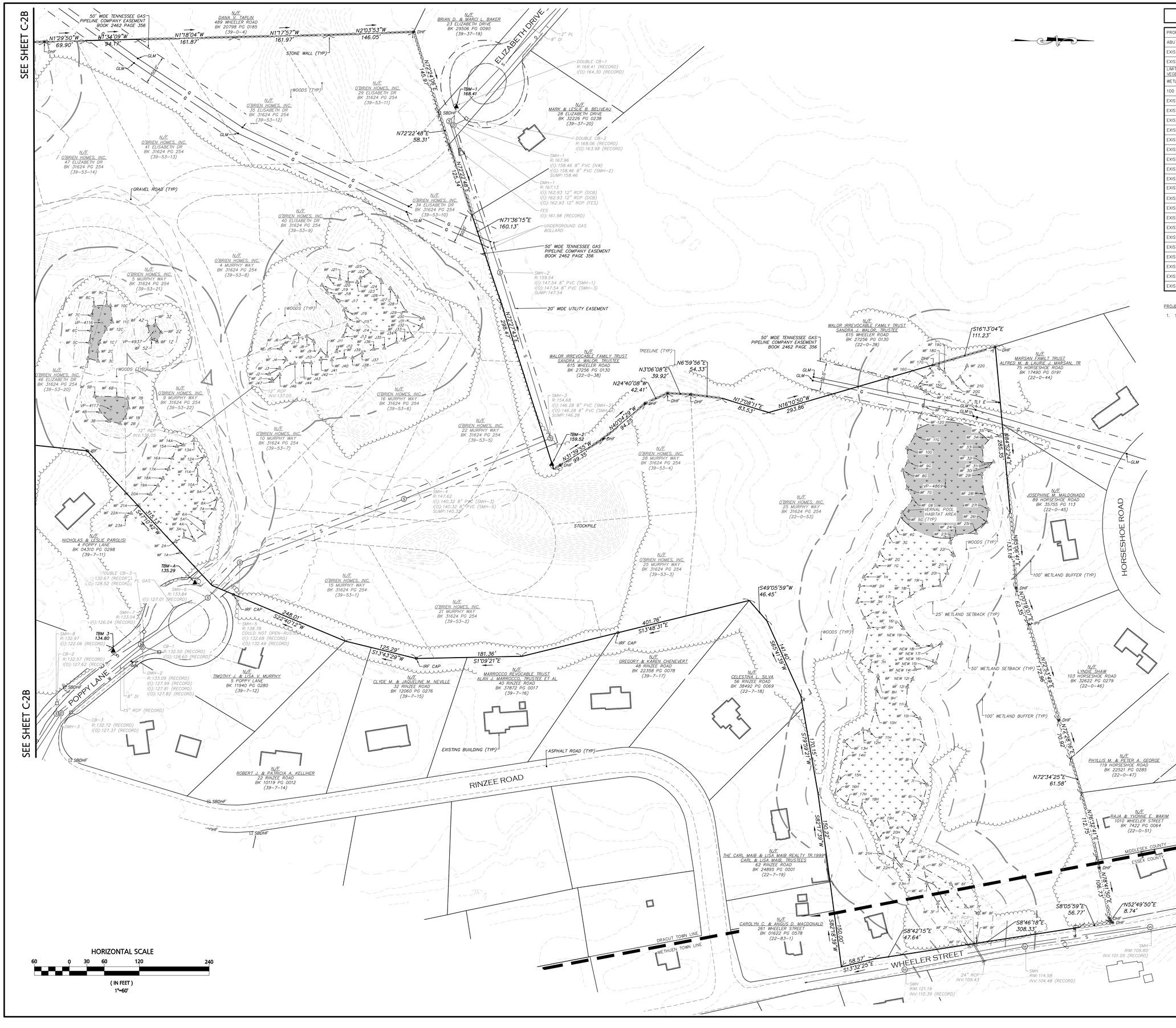
COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC
344 North Main Street | Andover - MA 01810
(978) 475-0920 | www.civildcc.com

DRAWING TITLE:
COVER SHEET

DRAWING #:
C-1



LEGEND

PROPERTY LINE	
ABUTTERS PROPERTY LINE	
EXISTING EDGE OF PAVEMENT	
EXISTING EDGE OF GRAVEL	
LIMIT OF BORDERING VEGETATED WETLAND (BVW)	
WETLAND	
100 FT BUFFER TO BVW	
EXISTING WETLAND FLAG	
EXISTING VERNAL POOL	
EXISTING CONTOUR	
EXISTING EASEMENT	
EXISTING TREE LINE	
EXISTING STONE WALL	
EXISTING UTILITY POLE	
EXISTING DRAIN MANHOLE	
EXISTING DRAIN	
EXISTING CATCHBASIN	
EXISTING FLARED END SECTION	
EXISTING SEWER MANHOLE	
EXISTING WATER	
EXISTING SEWER	
EXISTING HYDRANT	
EXISTING GAS	G G
EXISTING GAS BOLLARD	
EXISTING IRON PIN	
EXISTING BOUND	
EXISTING BENCHMARK	

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES

DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS

REVISIONS

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	MARCH 27, 2025
PROJECT #:	23-10524
PREPARED BY:	MEY/EAC

COMMONWEALTH OF MASSACHUSETTS
EDWARD A. CUOCO SR.
No. 58441
REGISTERED PROFESSIONAL LAND SURVEYOR

5/15/25

PROFESSIONAL LAND SURVEYOR FOR
CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC
344 North Main Street | Andover - MA 01810
(978) 416-0920 | www.civildc.com

DRAWING TITLE:

EXISTING CONDITIONS PLAN

DRAWING #:

C-2A

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES

HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

05/09/25	REV. PER PEER REVIEW COMMENTS
DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

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MURPHY'S FARM

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DRAWING TITLE:

EXISTING CONDITIONS PLAN

DRAWING #:

C-2B

NAD83

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES
2. PROPOSED MULTI-FAMILY DWELLINGS TO BE A MIXTURE OF 20% ONE-BEDROOM, 60% TWO-BEDROOM, AND 20% THREE-BEDROOM UNITS.

LANDSCAPING NOTES:

PROVIDED IMPERVIOUS: 11.50-AC
PROVIDED LANDSCAPING: 13.25-AC

MINIMUM 20% LANDSCAPING PROVIDED.

LEGEND

PROPERTY LINE	
BUILDING SETBACK	
CENTERLINE	0+50 1+00
PROPOSED STRUCTURE	
PROPOSED CURB	
PROPOSED EASEMENT	
PROPOSED WALKING TRAIL	
PROPOSED CONCRETE	
PROPOSED LIMIT OF WORK	
PROPOSED TREE LINE	
PROPOSED GUARDRAIL	
PROPOSED ROCK RIP-RAP	
PROPOSED CROSSWALK	
PROPOSED CURB RAMP	
PROPOSED LIGHTING	
PROPOSED PARKING COUNT	18
PROPOSED HANDICAP SPACE	
PROPOSED TRAFFIC ARROW	
PROPOSED SIGN	
PROPOSED STOP BAR	
PROPOSED STREET PLANT	
PROPOSED ARBOVITAE SCREENING	
PROPOSED BUILDING #	#17B
PROPOSED PARKING SPACE	
EXISTING UTILITY POLE	
EXISTING EASEMENT	
EXISTING STONE WALL	
LIMIT OF BORDERING VEGETATED WETLAND (BVW)	
WETLAND	
100 FT BUFFER TO BVW	
50 FT BUFFER TO BVW	
EXISTING WETLAND FLAG	
EXISTING VERNAL POOL	
EXISTING TREE LINE	

HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

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APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

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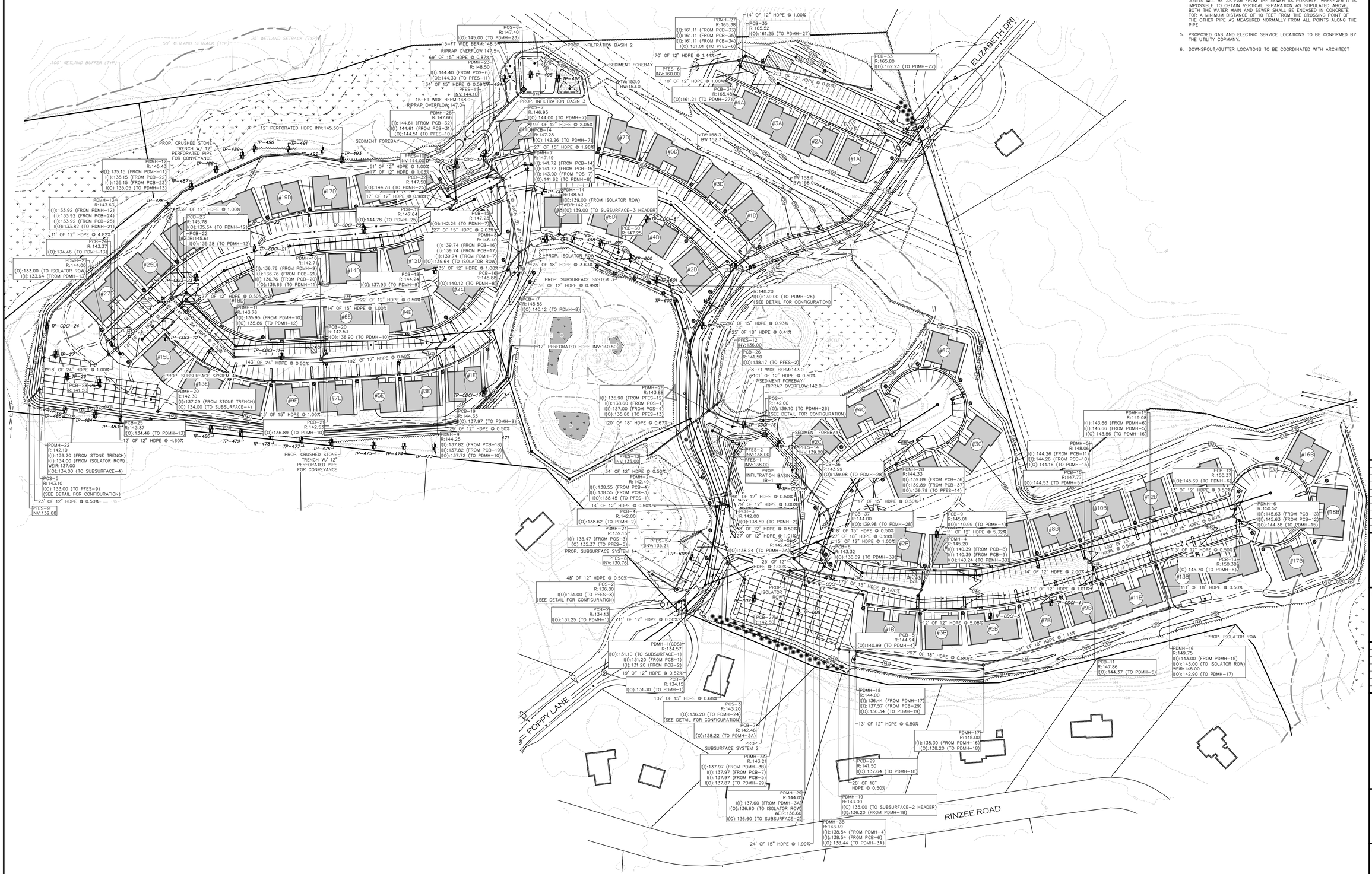
DRAWING TITLE:

LAYOUT & MATERIALS PLAN

DRAWING #:

C-3

NAD83



HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES
2. SEE CONSTRUCTION SEQUENCING NOTES ON SHEET D-1.
3. CONTRACTOR IS TO VERIFY THE LOCATION, DEPTH, AND CONDITION OF THE EXISTING SEWER AND WATER PRIOR TO CONSTRUCTION.
4. PROPOSED WATER AND SEWER MAINS TO MAINTAIN 10-FT OF HORIZONTAL SEPARATION. WHERE SANITARY SEWERS CROSS WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHENEVER IT IS IMPOSSIBLE TO OBTAIN VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND SEWER SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE
5. PROPOSED GAS AND ELECTRIC SERVICE LOCATIONS TO BE CONFIRMED BY THE UTILITY COPMANY.
6. DOWNSPOUT/GUTTER LOCATIONS TO BE COORDINATED WITH ARCHITECT

DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
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10/04/24	REV. PER PEER REVIEW COMMENTS
REVISIONS	

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
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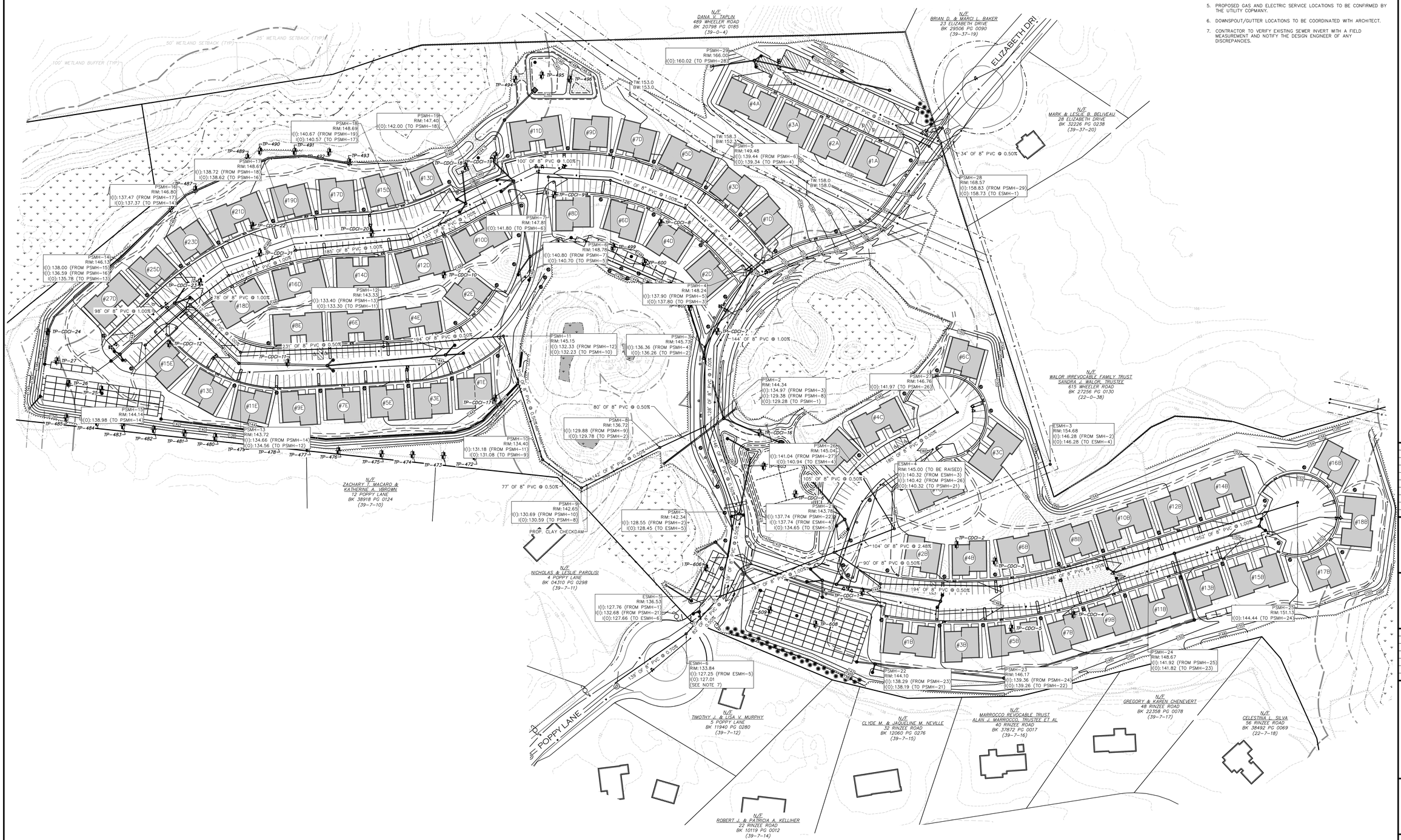
DRAWING TITLE:

GRADING, DRAINAGE & UTILITIES PLAN

DRAWING #:

C-4A

NAD83



HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES
2. SEE CONSTRUCTION SEQUENCING NOTES ON SHEET D-1.
3. CONTRACTOR IS TO VERIFY THE LOCATION, DEPTH, AND CONDITION OF THE EXISTING SEWER AND WATER PRIOR TO CONSTRUCTION.
4. PROPOSED WATER AND SEWER MAINS TO MAINTAIN 10-FT OF HORIZONTAL SEPARATION. WHERE SANITARY SEWERS CROSS WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHENEVER IT IS IMPOSSIBLE TO OBTAIN VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND SEWER SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE
5. PROPOSED GAS AND ELECTRIC SERVICE LOCATIONS TO BE CONFIRMED BY THE UTILITY COMPANY.
6. DOWNSPOUT/GUTTER LOCATIONS TO BE COORDINATED WITH ARCHITECT.
7. CONTRACTOR TO VERIFY EXISTING SEWER INVERT WITH A FIELD MEASUREMENT AND NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.

DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
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12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
REVISIONS	

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

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DRAWING TITLE:

GRADING, SEWER & UTILITIES PLAN

DRAWING #:

C-4B

NAD83

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES
2. SEE CONSTRUCTION SEQUENCING NOTES ON SHEET D-1.
3. CONTRACTOR IS TO VERIFY THE LOCATION, DEPTH, AND CONDITION OF THE EXISTING SEWER AND WATER PRIOR TO CONSTRUCTION.
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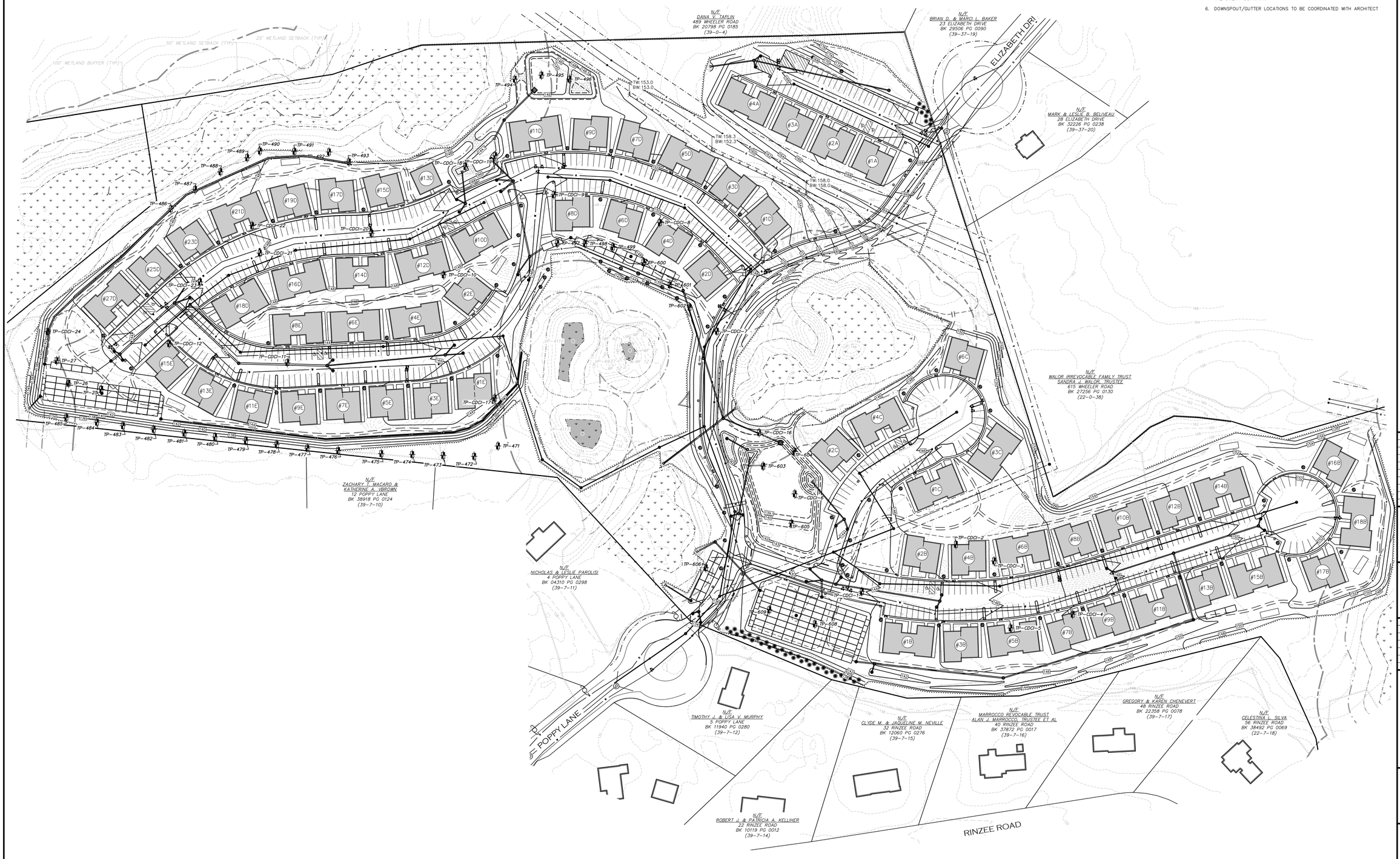

HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

05/09/25	REV. PER PEER REVIEW COMMENTS
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02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
DATE	DESCRIPTION
REVISIONS	

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
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PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

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344 North Main Street | Andover - MA 01810
(978) 475-0920 | www.civildci.com

DRAWING TITLE:

OVERALL GRADING & UTILITIES PLAN

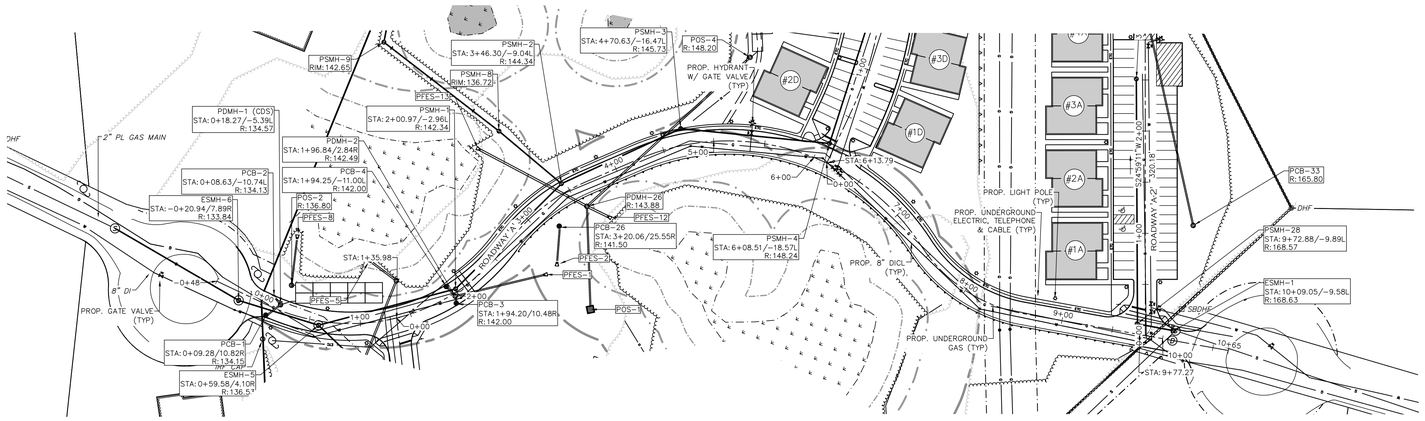
DRAWING #:

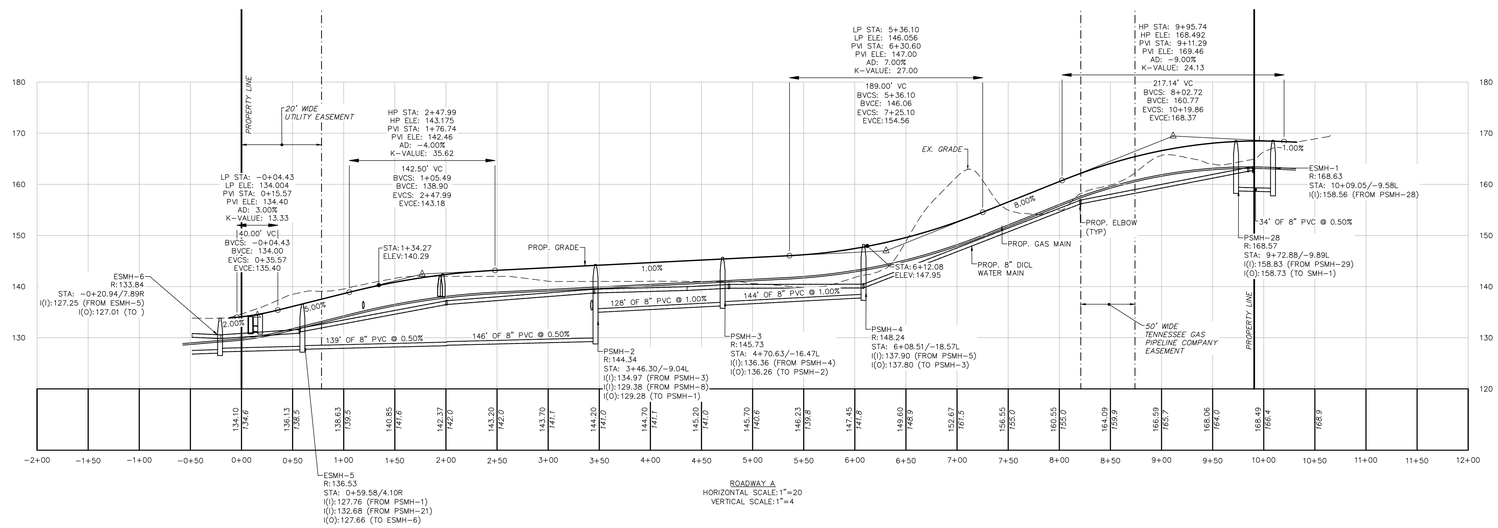
C-4C

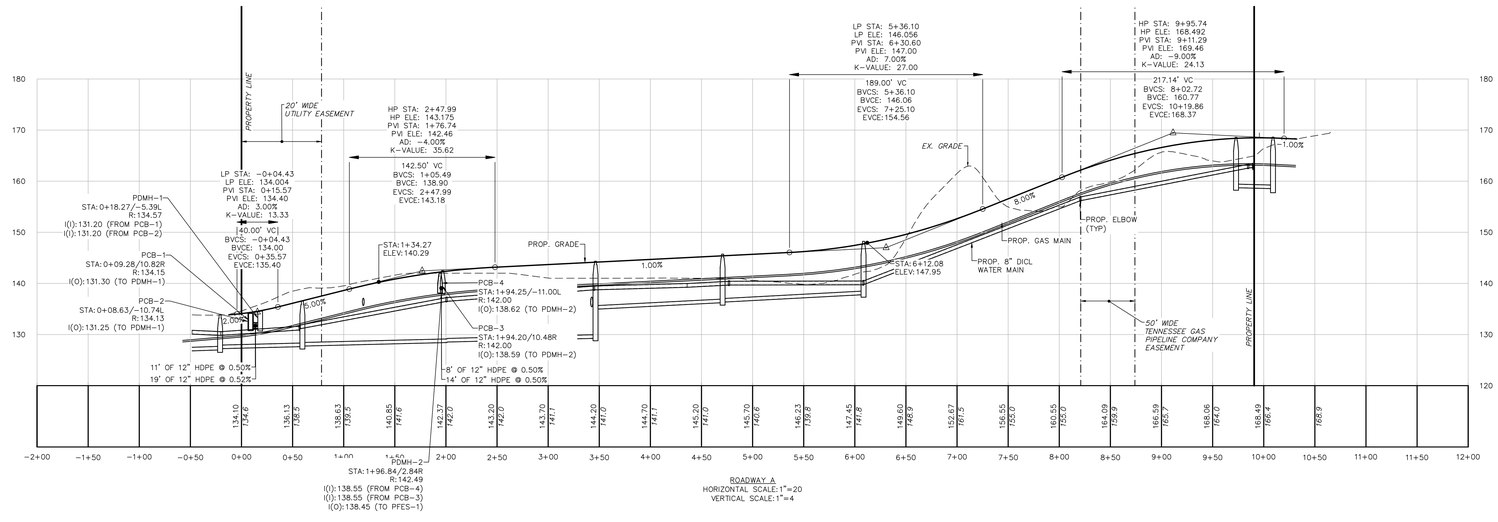
PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES

NAD83







DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS

REVISIONS

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC.
344 North Main Street | Andover - MA 01810
(978) 416-0920 | www.civildci.com

DRAWING TITLE:

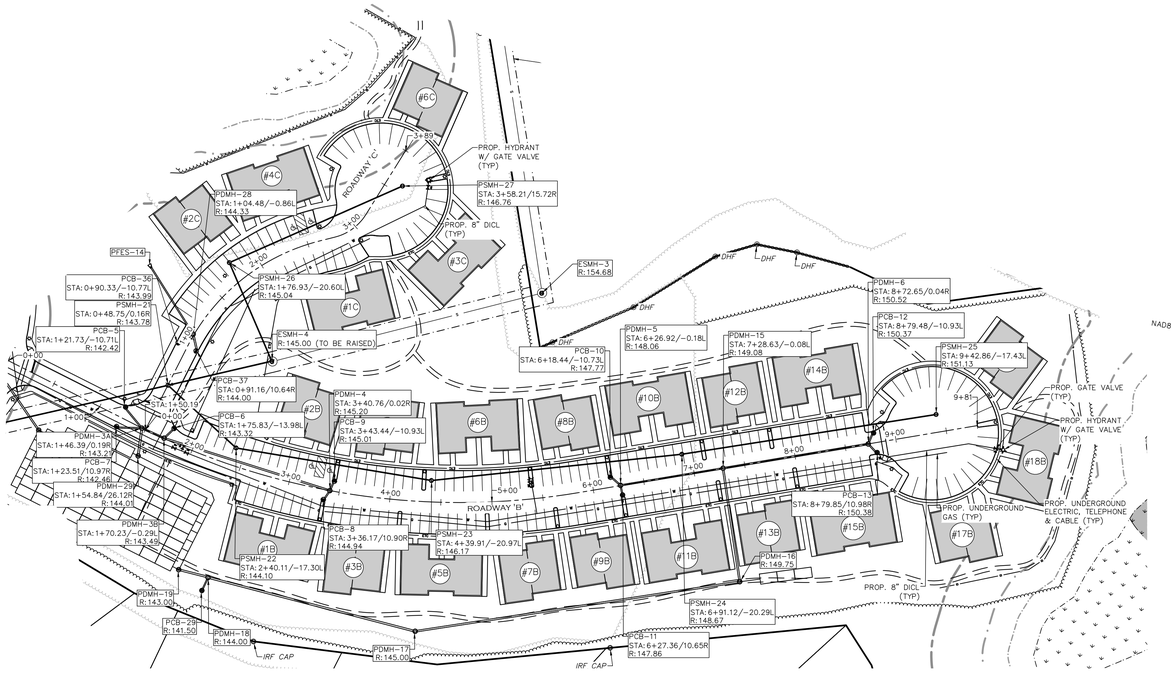
PLAN & PROFILE

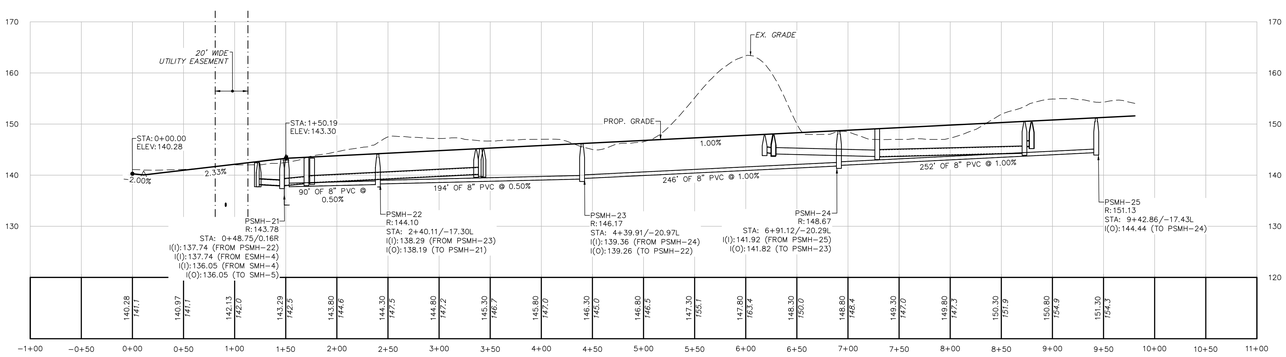
DRAWING #:

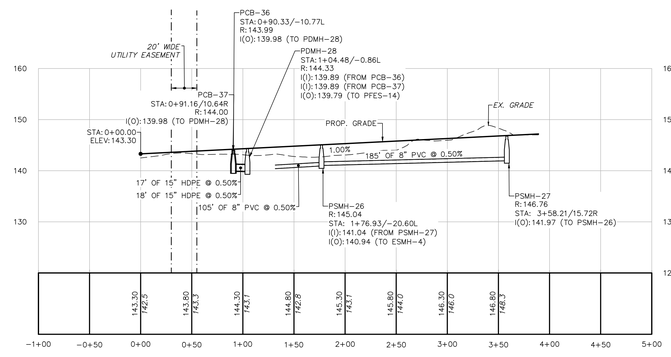
C-5A

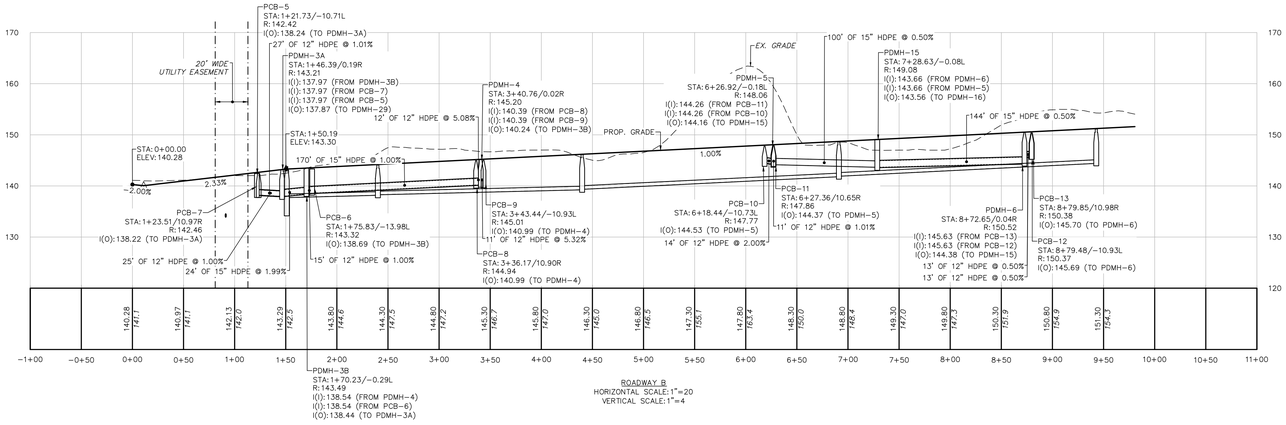
PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES









05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
DATE	DESCRIPTION
REVISIONS	

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
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DRAWING TITLE:

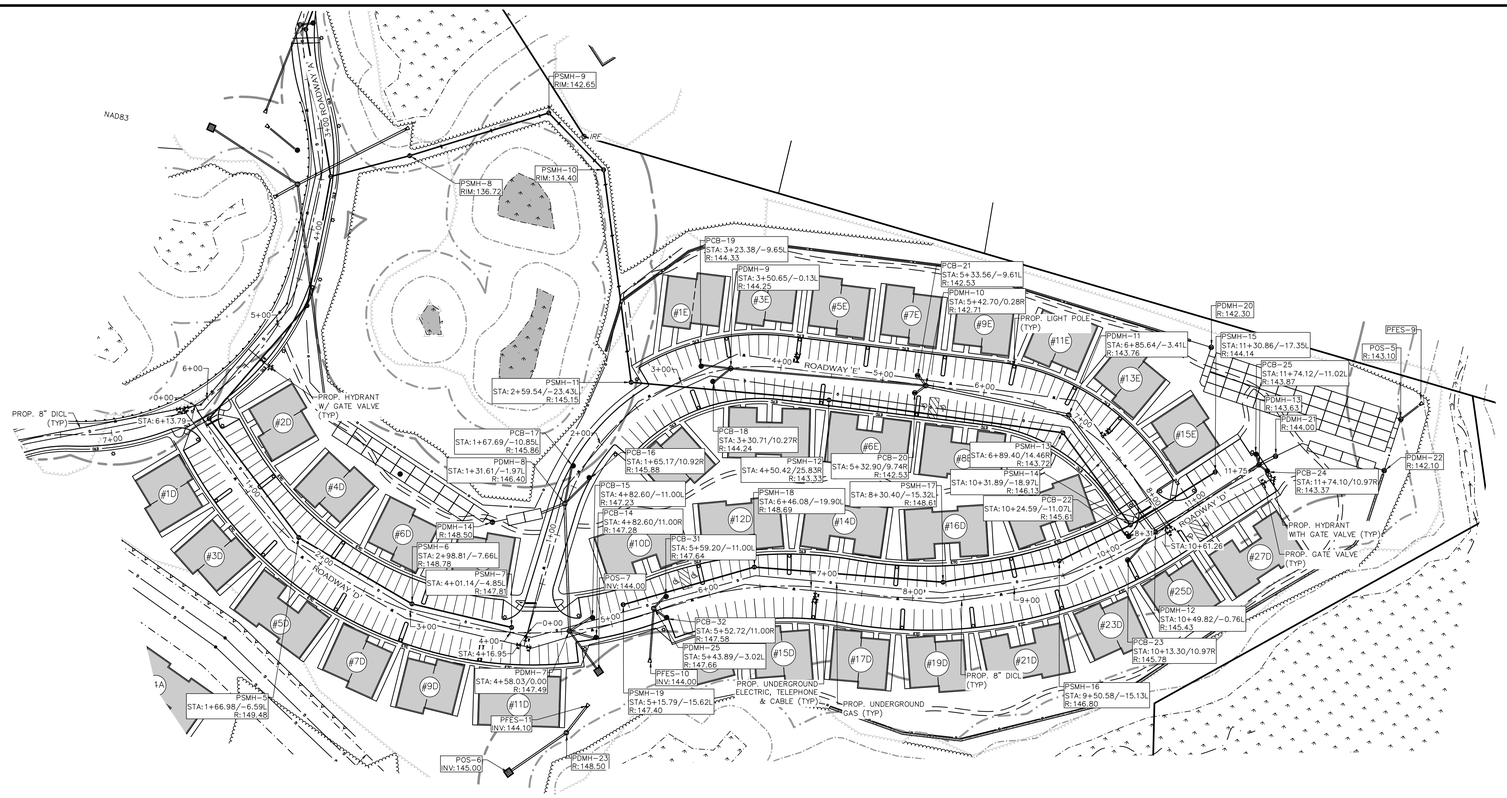
PLAN & PROFILE

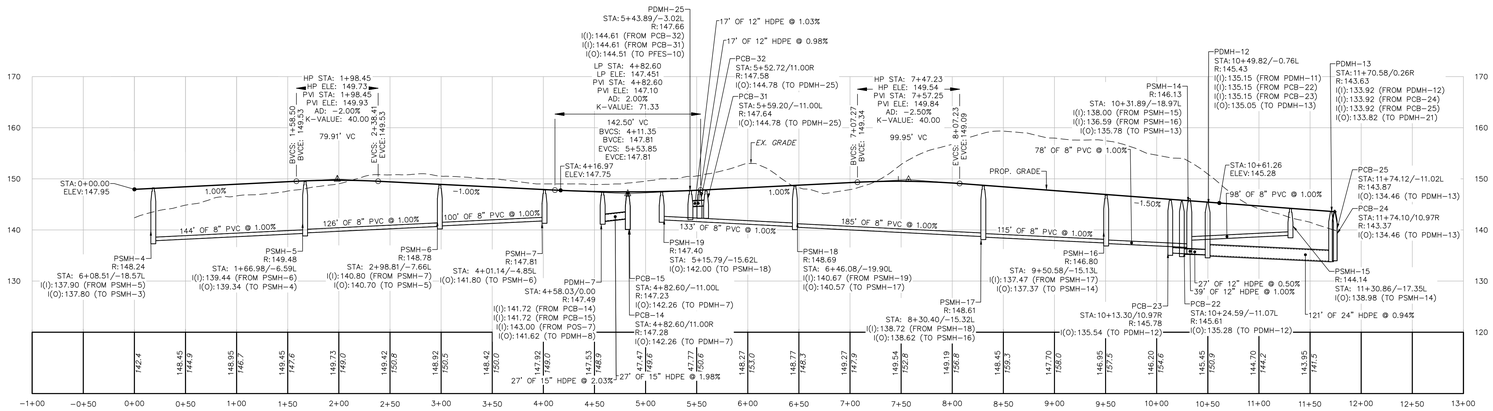
DRAWING #:

C-5B

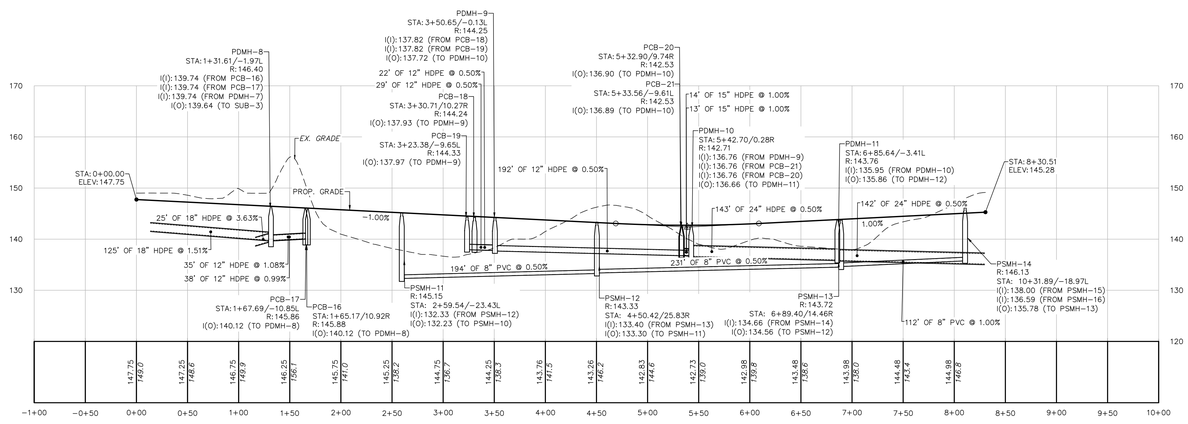
PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES





ROADWAY D
HORIZONTAL SCALE:1"=20
VERTICAL SCALE:1"=4



ROADWAY E
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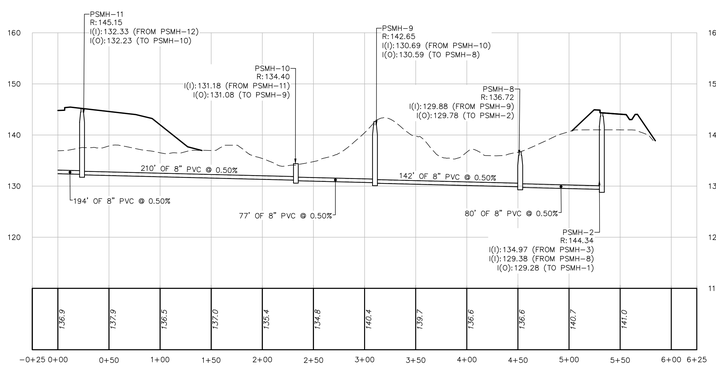
VERTICAL SCALE:1"=4



PSMH-11 TO PSMH-1
HORIZONTAL SCALE:1"=20
VERTICAL SCALE:1"=4

DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS

REVISIONS

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

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344 North Main Street | Andover - MA 01810
(978) 475-0920 | www.civildcc.com

DRAWING TITLE:

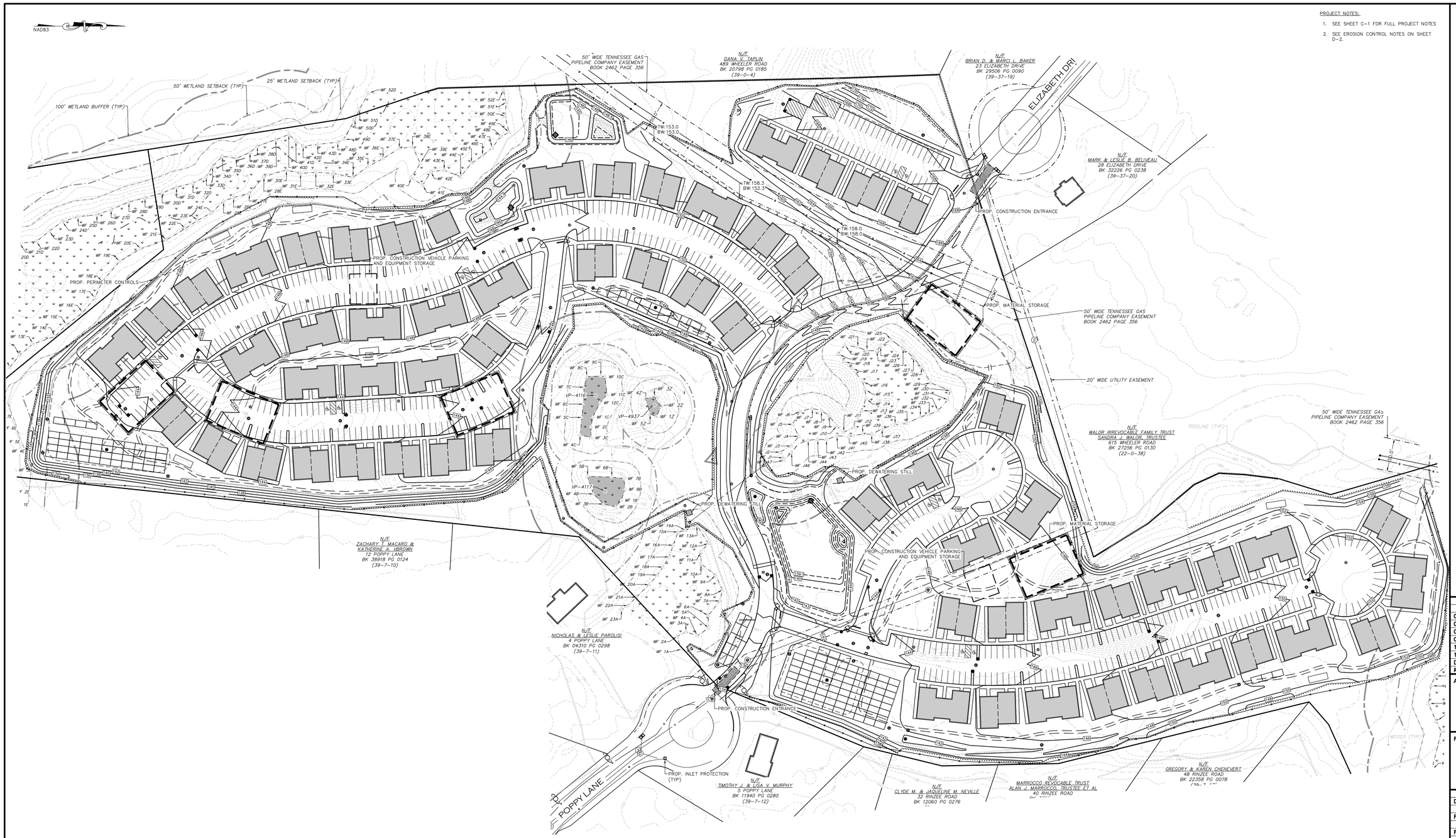
PLAN & PROFILE

DRAWING #:

C-5C

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES
2. SEE EROSION CONTROL NOTES ON SHEET D-2.



HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

REVISIONS	
DATE	DESCRIPTION
10/04/24	REV. PER PEER REVIEW COMMENTS
12/30/24	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
02/25/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
05/09/25	REV. PER PEER REVIEW COMMENTS

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
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COMMONWEALTH OF MASSACHUSETTS
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DRAWING TITLE:

EROSION CONTROL PLAN

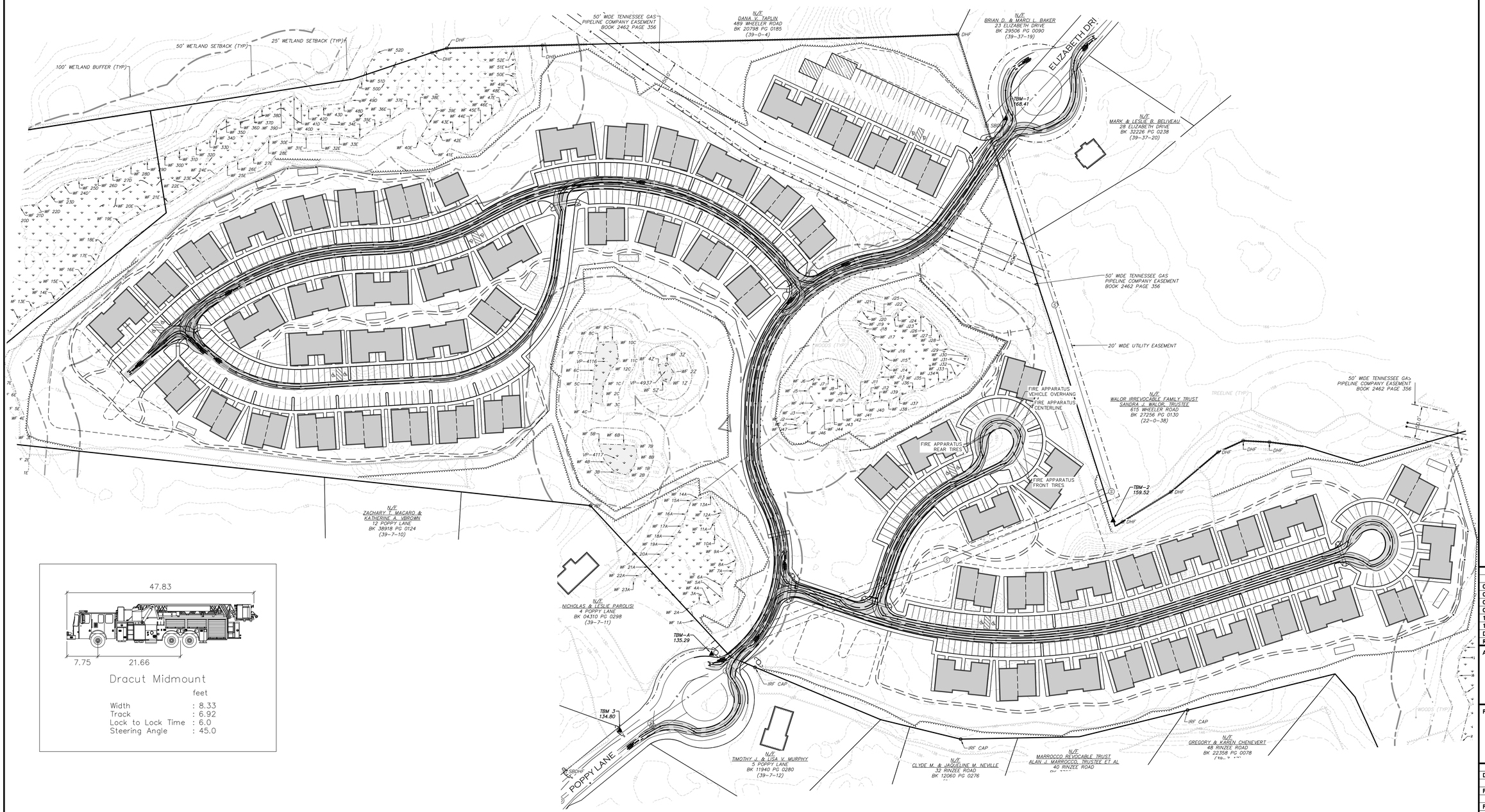
DRAWING #:

C-6

PROJECT NOTES:

1. SEE SHEET C-1 FOR FULL PROJECT NOTES

NAD83



Dracut Midmount

	feet
Width	: 8.33
Track	: 6.92
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

REVISIONS	
DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
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344 North Main Street | Andover - MA 01810
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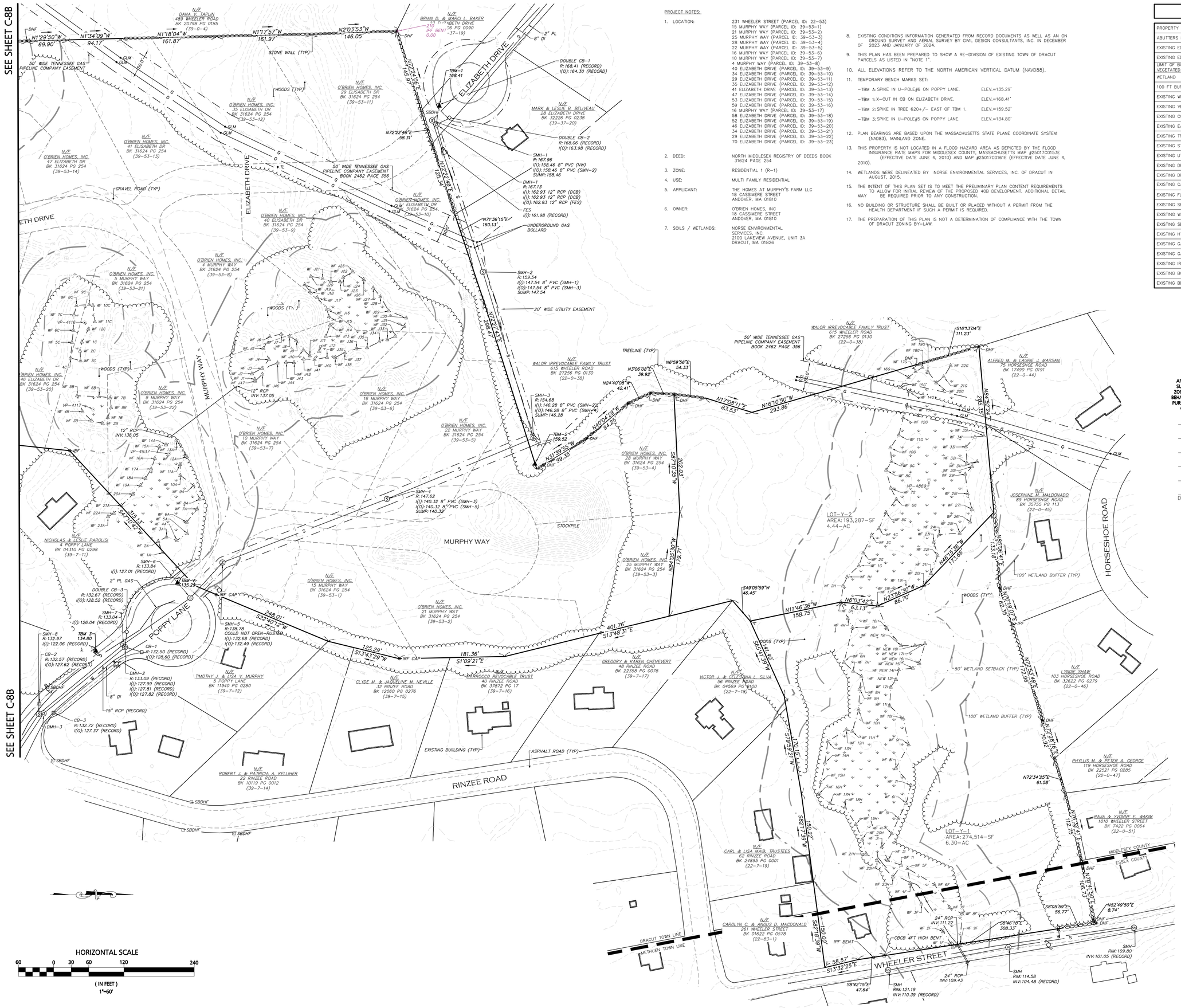
DRAWING TITLE:

FIRE TRUCK TURNING PLAN

DRAWING #:

C-7



PROJECT NOTES:

1. LOCATION: 231 WHEELER STREET (PARCEL ID: 22-53)
15 MURPHY WAY (PARCEL ID: 39-53-1)
21 MURPHY WAY (PARCEL ID: 39-53-2)
25 MURPHY WAY (PARCEL ID: 39-53-3)
28 MURPHY WAY (PARCEL ID: 39-53-4)
22 MURPHY WAY (PARCEL ID: 39-53-5)
16 MURPHY WAY (PARCEL ID: 39-53-6)
10 MURPHY WAY (PARCEL ID: 39-53-7)
4 MURPHY WAY (PARCEL ID: 39-53-8)
40 ELIZABETH DRIVE (PARCEL ID: 39-53-9)
34 ELIZABETH DRIVE (PARCEL ID: 39-53-10)
29 ELIZABETH DRIVE (PARCEL ID: 39-53-11)
35 ELIZABETH DRIVE (PARCEL ID: 39-53-12)
41 ELIZABETH DRIVE (PARCEL ID: 39-53-13)
47 ELIZABETH DRIVE (PARCEL ID: 39-53-14)
53 ELIZABETH DRIVE (PARCEL ID: 39-53-15)
59 ELIZABETH DRIVE (PARCEL ID: 39-53-16)
16 MURPHY WAY (PARCEL ID: 39-53-17)
58 ELIZABETH DRIVE (PARCEL ID: 39-53-18)
52 ELIZABETH DRIVE (PARCEL ID: 39-53-19)
46 ELIZABETH DRIVE (PARCEL ID: 39-53-20)
34 ELIZABETH DRIVE (PARCEL ID: 39-53-21)
29 ELIZABETH DRIVE (PARCEL ID: 39-53-22)
70 ELIZABETH DRIVE (PARCEL ID: 39-53-23)

2. DEED: NORTH MIDDLESEX REGISTRY OF DEEDS BOOK 31624 PAGE 254

3. ZONE: RESIDENTIAL 1 (R-1)

4. USE: MULTI FAMILY RESIDENTIAL

5. APPLICANT: THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

6. OWNER: O'BRIEN HOMES, INC
18 CASSIMERE STREET
ANDOVER, MA 01810

7. SOILS / WETLANDS: NORSE ENVIRONMENTAL SERVICES, INC.
2100 LAKEVIEW AVENUE, UNIT 3A
DRACUT, MA 01826

8. EXISTING CONDITIONS INFORMATION GENERATED FROM RECORD DOCUMENTS AS WELL AS AN ON GROUND SURVEY AND AERIAL SURVEY BY CIVIL DESIGN CONSULTANTS, INC. IN DECEMBER OF 2023 AND JANUARY OF 2024.

9. THIS PLAN HAS BEEN PREPARED TO SHOW A RE-DIVISION OF EXISTING TOWN OF DRACUT PARCELS AS LISTED IN "NOTE 1".

10. ALL ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88).

11. TEMPORARY BENCH MARKS SET:

-TBM A: SPIKE IN U-POLE#6 ON POPPY LANE.	ELEV.=135.29'
-TBM 1: X-CUT IN CB ON ELIZABETH DRIVE.	ELEV.=168.41'
-TBM 2: SPIKE IN TREE 620+/- EAST OF TBM 1.	ELEV.=159.52'
-TBM 3: SPIKE IN U-POLE#5 ON POPPY LANE.	ELEV.=134.80'

12. PLAN BEARINGS ARE BASED UPON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD83), MAINLAND ZONE.

13. THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD AREA AS DEPICTED BY THE FLOOD INSURANCE RATE MAPS FOR MIDDLESEX COUNTY, MASSACHUSETTS MAP #25017C0153E (EFFECTIVE DATE JUNE 4, 2010) AND MAP #25017C0161E (EFFECTIVE DATE JUNE 4, 2010).

14. WETLANDS WERE DELINEATED BY NORSE ENVIRONMENTAL SERVICES, INC. OF DRACUT IN AUGUST, 2015.

15. THE INTENT OF THIS PLAN SET IS TO MEET THE PRELIMINARY PLAN CONTENT REQUIREMENTS TO ALLOW FOR INITIAL REVIEW OF THE PROPOSED 40B DEVELOPMENT. ADDITIONAL DETAIL MAY BE REQUIRED PRIOR TO ANY CONSTRUCTION.

16. NO BUILDING OR STRUCTURE SHALL BE BUILT OR PLACED WITHOUT A PERMIT FROM THE HEALTH DEPARTMENT IF SUCH A PERMIT IS REQUIRED.

17. THE PREPARATION OF THIS PLAN IS NOT A DETERMINATION OF COMPLIANCE WITH THE TOWN OF DRACUT ZONING BY-LAW.

LEGEND

PROPERTY LINE	
ABUTTERS PROPERTY LINE	
EXISTING EDGE OF PAVEMENT	
EXISTING EDGE OF GRAVEL	
LIMIT OF BORDERING VEGETATED WETLAND (BVW)	
WETLAND	
100 FT BUFFER TO BVW	
EXISTING WETLAND FLAG	
EXISTING VERNAL POOL	
EXISTING CONTOUR	
EXISTING EASEMENT	
EXISTING TREE LINE	
EXISTING STONE WALL	
EXISTING UTILITY POLE	
EXISTING DRAIN MANHOLE	
EXISTING DRAIN	
EXISTING CATCHBASIN	
EXISTING FLARED END SECTION	
EXISTING SEWER MANHOLE	
EXISTING WATER	
EXISTING SEWER	
EXISTING HYDRANT	
EXISTING GAS	G G
EXISTING GAS BOLLARD	
EXISTING IRON PIN	
EXISTING BOUND	
EXISTING BENCHMARK	

APPROVAL NOT REQUIRED UNDER THE SUBDIVISION CONTROL LAW. DRACUT ZONING BOARD OF APPEALS ACTING ON BEHALF OF THE DRACUT PLANNING BOARD PURSUANT TO ITS AUTHORITY UNDER THE COMPREHENSIVE PERMIT STATUTE

DATE OF ENDORSEMENT

DATE	DESCRIPTION
2/25/25	REV. PER GAS EASEMENT CHANGE

REVISIONS

OWNER / APPLICANT:
THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:
MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	MARCH 28, 2025
PROJECT #:	23-10524
PREPARED BY:	EAC

COMMONWEALTH OF MASSACHUSETTS
EDWARD A. CUCCO SR.
No. 58441
REGISTERED PROFESSIONAL LAND SURVEYOR

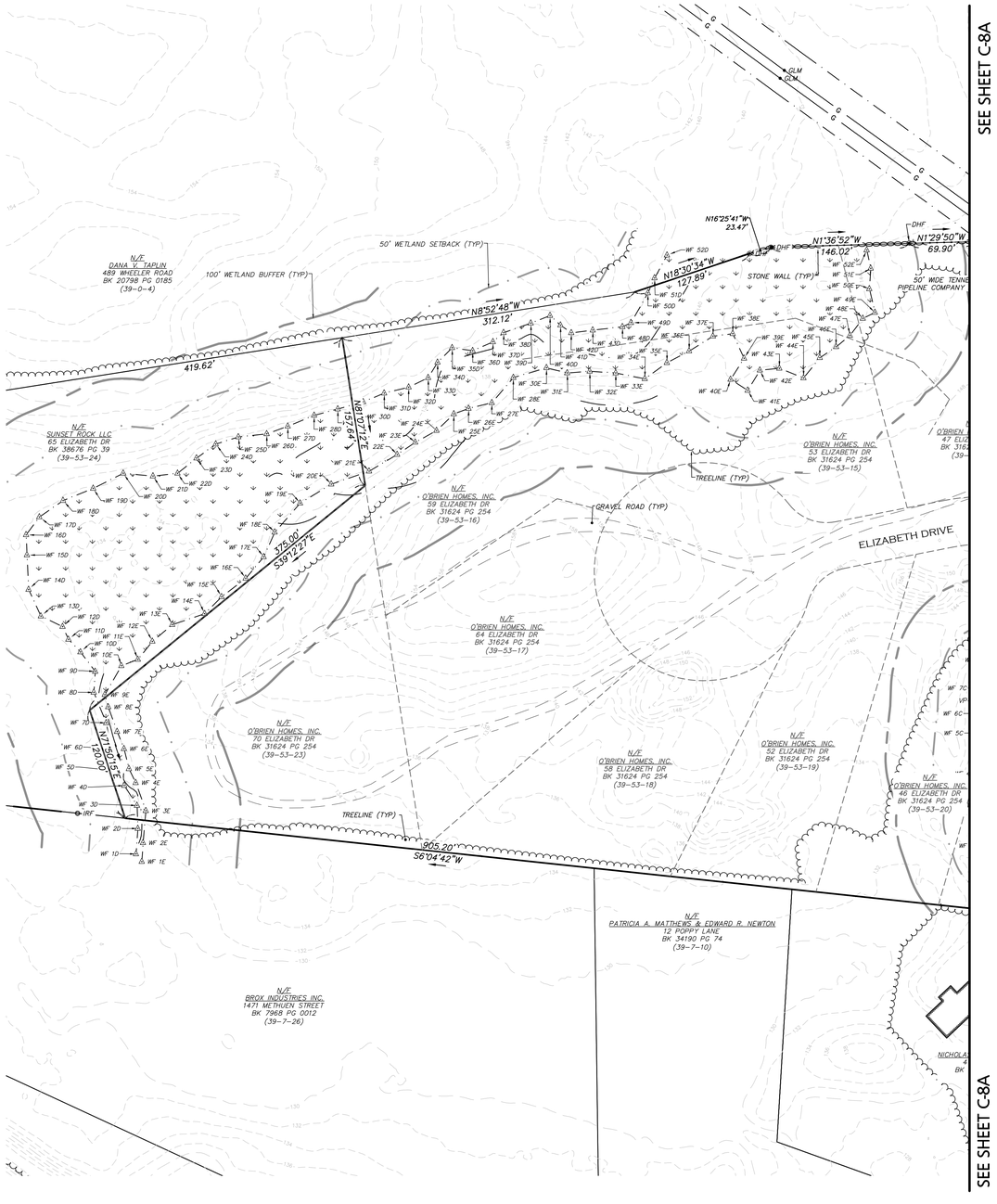
3/28/25

PROFESSIONAL LAND SURVEYOR FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC
344 North Main Street | Andover - MA 01810
(978) 416-0920 | www.cvildsi.com

DRAWING TITLE:
PLAN OF LAND

DRAWING #:
C-8A



HORIZONTAL SCALE

60 0 30 60 120 240

(IN FEET)
1"=60'

2/25/25	REV. PER GAS EASEMENT CHANGE
DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
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DRAWING TITLE:

PLAN OF LAND

DRAWING #:

C-8B

GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.
3. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE MASSDOT AND THE LOCAL SUBDIVISION REGULATIONS.
4. CONTRACTOR TO CONFIRM AND VERIFY THE VALIDITY, LOCATION, MATERIAL, AND AVAILABILITY TO USE EXISTING UTILITIES ON OR NEAR THE PROJECT SITE PROPERTY. CONTRACTOR TO LOCATE EXISTING UTILITIES AND CONFIRM SAID UTILITIES WITH ALL APPLICABLE MUNICIPALITIES AND UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. ONCE UTILITIES HAVE BEEN CONFIRMED IN THE FIELD BY CONTRACTOR AND VERIFIED BY APPLICABLE MUNICIPALITY AND UTILITY COMPANY AND CONNECTION HAS BEEN APPROVED BY ENTITY, ONLY THEN SHALL THE CONTRACTOR CONSTRUCT AND UTILIZE THESE UTILITIES. CONTRACTOR TO IMMEDIATELY INFORM THE ENGINEER OF RECORD OF ANY DEVIATIONS TO PLANS.
5. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT AND THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST THREE WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION. ALL WATER, GAS, SEWER AND OTHER UTILITIES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
7. RELOCATION OF ANY UTILITIES SHALL BE AT THE OWNERS EXPENSE AND COMPLETED WITH THE UTILITY WORK. THE OWNER SHALL BE NOTIFIED AS TO THE RELOCATIONS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, WALKS, CURBS, ETC. THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
9. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.
10. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE DOCUMENTS AND SUBSEQUENT ISSUED PLAN REVISIONS. ANY DEVIATIONS FROM THESE DOCUMENTS SHALL REQUIRE NOTIFICATION TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTING ANY CHANGE. THE CONTRACTOR WILL BE WORKING AT HIS OR HER OWN RISK.
11. ALL WATER AND SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF DRACUT RULES AND REGULATIONS

GENERAL CONSTRUCTION SEQUENCING:

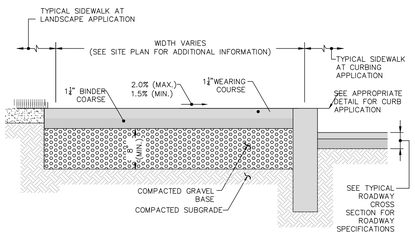
DESCRIBED BELOW ARE THE MAJOR CONSTRUCTION ACTIVITIES. THEY ARE PRESENTED IN THE ORDER (OR SEQUENCE) THEY ARE EXPECTED TO BEGIN, BUT EACH ACTIVITY WILL NOT NECESSARILY BE COMPLETED BEFORE THE NEXT BEGINS. ALSO, THESE ACTIVITIES COULD OCCUR IN A DIFFERENT ORDER IF NECESSARY TO MAINTAIN ADEQUATE EROSION AND SEDIMENTATION CONTROL. ALL ACTIVITIES AND THE TIMEFRAME (BEGINNING AND ENDING DATES) SHALL BE RECORDED BY THE GENERAL CONTRACTOR:

1. CONTRACTOR TO REVIEW ALL LOCAL, STATE AND FEDERAL PERMITS.
2. REVIEW AND CERTIFY THE STORMWATER POLLUTION PREVENTION PLAN.
3. DELINEATE THE LIMIT OF THE TREE CLEARING OPERATIONS.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
5. CUT AND CLEAR TREES WITHIN THE AREA OF DISTURBANCE.
6. PLACE REMAINING EROSION CONTROL MEASURES PRIOR TO ANY EARTH MOVING OPERATIONS.
7. CONSTRUCT BASINS. LIMIT EXCAVATION TO WITHIN 1-FT OF BASIN BOTTOM TO PREVENT SEDIMENT ACCUMULATION IN FINISHED BASIN BOTTOM. NO MATERIAL OR VEHICLE STORAGE SHOULD OCCUR OVER PROPOSED BASIN LOCATIONS. WHERE APPROPRIATE AND/OR AS-NEEDED, ADDITIONAL SILTATION FENCES, SEDIMENT TRAPS, OR STONE CHECKDAMS SHOULD BE CONSTRUCTED.
8. BEGIN ROUGH GRADING AND EARTHWORK OPERATIONS.
9. CONSTRUCT REMAINING DRAINAGE IMPROVEMENTS. ALL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER GRADING. ALL DISTURBED AREAS SHALL BE STABILIZED NO LATER THAN 72-HOURS AFTER CONSTRUCTION ACTIVITIES CEASE. IF EARTHWORK TEMPORARILY CEASES ON A PORTION OF OR ON THE ENTIRE SITE, AND WILL NOT RESUME WITHIN 21-DAYS, THE AREA SHALL BE STABILIZED. AN AREA SHALL BE CONSIDERED STABILE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3"OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
10. AFTER CONTRIBUTING AREAS HAVE BEEN STABILIZED BUT PRIOR TO BASINS RECEIVING RUNOFF, BASINS ARE TO BE BROUGHT TO FINAL GRADE. CONSTRUCTION VEHICLES SHOULD AVOID TRAVERSING THE BASIN BOTTOM TO PREVENT UNWANTED COMPACTION.
11. INSTALL ALL UNDERGROUND UTILITIES.
12. CONSTRUCT ROADWAYS ACCORDING TO THE PLAN. ALL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
13. CONSTRUCT RESIDENCES AND ASSOCIATED INFRASTRUCTURE.
12. SURFACE TREATMENT OF ALL DISTURBED AREAS NOT PAVED OR OTHERWISE LANDSCAPED SHALL BE TREATED WITH 4" OF LOAM AND SEED.
13. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL MEASURES CONSISTENT WITH THE PROCEDURE AND SCHEDULE OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN.
14. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
15. REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE ALL AREAS ARE STABILIZED WITH A SUITABLE STAND OF GRASS, PAVEMENT OR COMPACTED GRAVELS.

GENERAL CONSTRUCTION SEQUENCING:

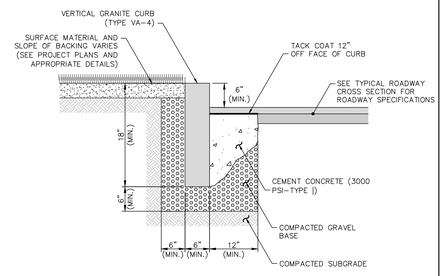
DESCRIBED BELOW ARE THE MAJOR CONSTRUCTION ACTIVITIES. THEY ARE PRESENTED IN THE ORDER (OR SEQUENCE) THEY ARE EXPECTED TO BEGIN, BUT EACH ACTIVITY WILL NOT NECESSARILY BE COMPLETED BEFORE THE NEXT BEGINS. ALSO, THESE ACTIVITIES COULD OCCUR IN A DIFFERENT ORDER IF NECESSARY TO MAINTAIN ADEQUATE EROSION AND SEDIMENTATION CONTROL. ALL ACTIVITIES AND THE TIMEFRAME (BEGINNING AND ENDING DATES) SHALL BE RECORDED BY THE GENERAL CONTRACTOR:

1. CONTRACTOR TO REVIEW ALL LOCAL, STATE AND FEDERAL PERMITS.
2. REVIEW AND CERTIFY THE STORMWATER POLLUTION PREVENTION PLAN.
3. DELINEATE THE LIMIT OF THE TREE CLEARING OPERATIONS.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
5. CUT AND CLEAR TREES WITHIN THE AREA OF DISTURBANCE.
6. PLACE REMAINING EROSION CONTROL MEASURES PRIOR TO ANY EARTH MOVING OPERATIONS.
7. CONSTRUCT INFILTRATION PONDS. LIMIT INITIAL EXCAVATION TO ELEVATION TO 1-FT ABOVE FINISHED GRADE SEE INFILTRATION BASIN CONSTRUCTION NOTES ON SHEET D-4 FOR ADDITIONAL INFORMATION.
8. BEGIN ROUGH GRADING AND EARTHWORK OPERATIONS.
9. CONSTRUCT REMAINING DRAINAGE IMPROVEMENTS. ALL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER GRADING. ALL DISTURBED AREAS SHALL BE STABILIZED NO LATER THAN 72-HOURS AFTER CONSTRUCTION ACTIVITIES CEASE. IF EARTHWORK TEMPORARILY CEASES ON A PORTION OF OR ON THE ENTIRE SITE, AND WILL NOT RESUME WITHIN 21-DAYS, THE AREA SHALL BE STABILIZED. AN AREA SHALL BE CONSIDERED STABILE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3"OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
10. INSTALL ALL UNDERGROUND UTILITIES.
11. CONSTRUCT ROADWAYS ACCORDING TO THE PLAN. ALL SLOPES SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
12. CONSTRUCT RESIDENCES AND ASSOCIATED INFRASTRUCTURE.
12. SURFACE TREATMENT OF ALL DISTURBED AREAS NOT PAVED OR OTHERWISE LANDSCAPED SHALL BE TREATED WITH 4" OF LOAM AND SEED.
13. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL MEASURES CONSISTENT WITH THE PROCEDURE AND SCHEDULE OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN.
14. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
15. REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE ALL AREAS ARE STABILIZED WITH A SUITABLE STAND OF GRASS, PAVEMENT OR COMPACTED GRAVELS.



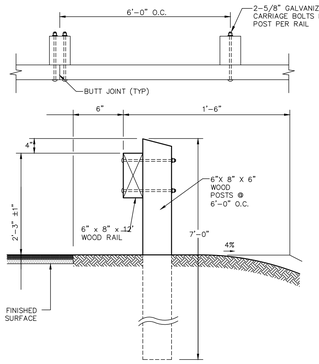
TYPICAL BITUMINOUS CONCRETE SIDEWALK

NOT TO SCALE



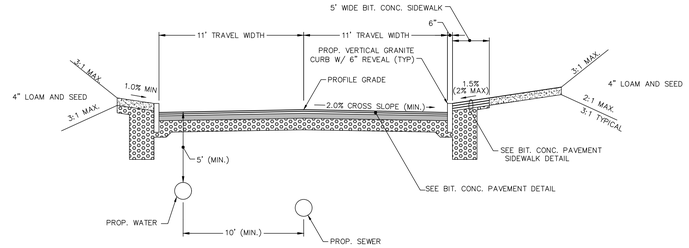
VERTICAL GRANITE CURB

NOT TO SCALE



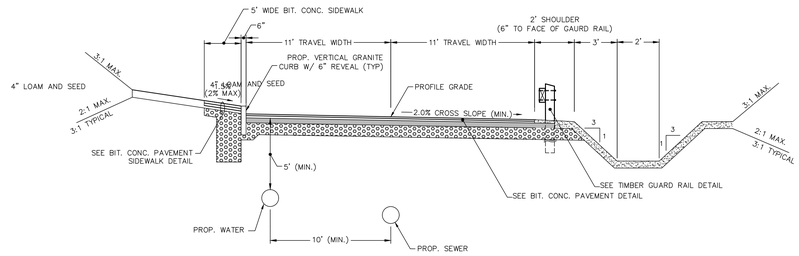
TIMBER GUARDRAIL

NOT TO SCALE



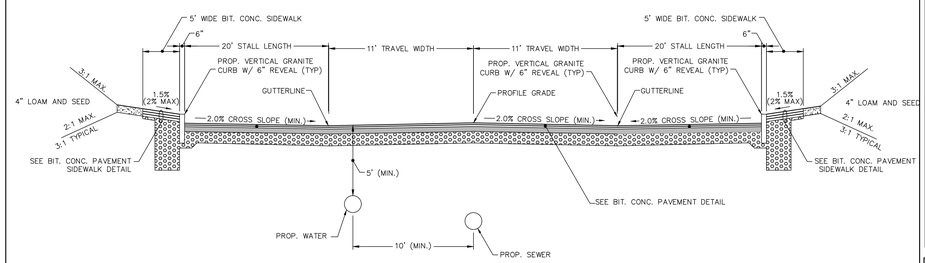
TYPICAL ROADWAY CROSS SECTION (CURBED W/ SIDEWALK)

NOT TO SCALE



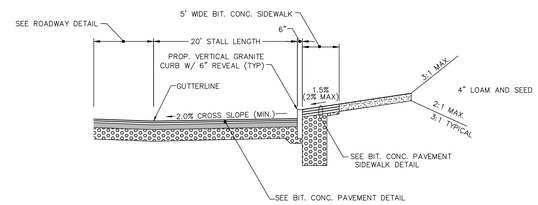
TYPICAL ROADWAY CROSS SECTION (HALF-CURB/HALF-SWALE)

NOT TO SCALE



TYPICAL ROADWAY CROSS SECTION (PARKING BOTH SIDES)

NOT TO SCALE



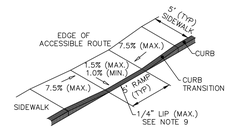
TYPICAL PARKING STALL CROSS SECTION

NOT TO SCALE

NOTES:
1. THE SUBGRADE SHALL BE EXCAVATED OF ALL FROST SUSCEPTIBLE MATERIAL, LOAM, MUCK, OR OTHER SOFT MATERIAL TO HARD BOTTOM-FROM WITHIN THE LIMITS OF THE PROPOSED STREET FOR ITS FULL LENGTH AND WIDTH OR AS OTHERWISE APPROVED BY THE BOARD. SUBGRADE SOILS CONTAINING 35% OR MORE SILT (35% PASSING #200 SIEVE) SHALL BE REMOVED TO A MINIMUM DEPTH OF FOUR FEET AND BACKFILLED WITH WELL GRADED BANK GRAVEL WITH NO STONE LARGER THAN EIGHT (8) INCHES DIAMETER.
2. SEE PROJECT PLANS FOR ROADWAY CURBING APPLICATIONS.
3. INDIVIDUAL VGC SEGMENTS SHALL BE 6" IN LENGTH EXCEPT ALONG THE PINEDALE AVENUE CURB RETURN WHERE THE SEGMENTS SHALL BE 4'-6" IN LENGTH.
4. GRANITE TRANSITION STONES SHALL BE PROVIDED AT ALL LOCATIONS WHERE CURBING TRANSITIONS FROM VGC TO BIT. CONC. CAPE COD BERM.

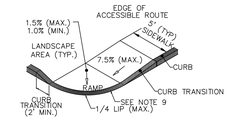
TYPICAL ROADWAY CROSS SECTIONS

NOT TO SCALE



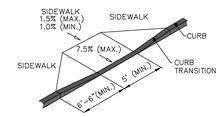
ACCESSIBLE CURB RAMP (ACR) TYPE 'B'

NOT TO SCALE



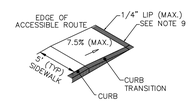
ACCESSIBLE CURB RAMP (ACR) TYPE 'C'

NOT TO SCALE



ACCESSIBLE CURB RAMP (ACR) TYPE 'D'

NOT TO SCALE



ACCESSIBLE CURB RAMP (ACR) TYPE 'E'

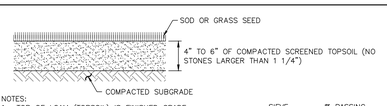
NOT TO SCALE

ACCESSIBLE CURB RAMP NOTES:

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5% (1% MIN.).
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE CURB RAMPS SHALL BE 7.5%.
4. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.)
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
8. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
9. ELIMINATE ALL CURBING AT RAMP (OTHER THAN VERTICAL CURBING, WHICH SHALL BE SET FLUSH) WHERE IT ABUTS ROADWAY.

ADA COMPLIANT ACCESSIBLE CURB RAMP DETAIL

NOT TO SCALE

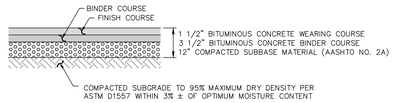


NOTES:
1. TOP OF LOAM (TOPSOIL) IS FINISHED GRADE.
2. TOPSOIL SHALL CONTAIN BETWEEN 5% AND 12% ORGANIC MATTER AND SHALL HAVE A MAXIMUM STONE SIZE OF 1 1/4" AND SHALL CONFORM TO THE FOLLOWING GRADATION:

SIEVE	% PASSING
1 1/4 INCH	100
No.4	85-100
No.40	60-85
No.100	38-60
No.200	28-40

LANDSCAPED AREA CROSS SECTION

NOT TO SCALE



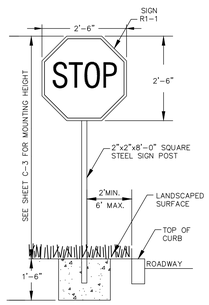
BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE

NOTES:
1. OWNER'S ENGINEER RESERVES THE RIGHT TO REQUEST COMPACTION TESTS AND/OR CORE SAMPLES. IF TESTS ARE BEYOND THOSE REQUIRED BY THE SPECIFICATIONS AND PROVE CORRECT, PER ABOVE SPECIFICATION, TESTS WILL BE AT THE EXPENSE OF THE OWNER, OTHERWISE THE CONTRACTOR WILL BE RESPONSIBLE FOR TESTING COST.
2. PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

TYPICAL SURFACE TREATMENT CROSS SECTIONS

NOT TO SCALE



TYPICAL SIGN DETAIL

NOT TO SCALE

DATE	REVISIONS
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

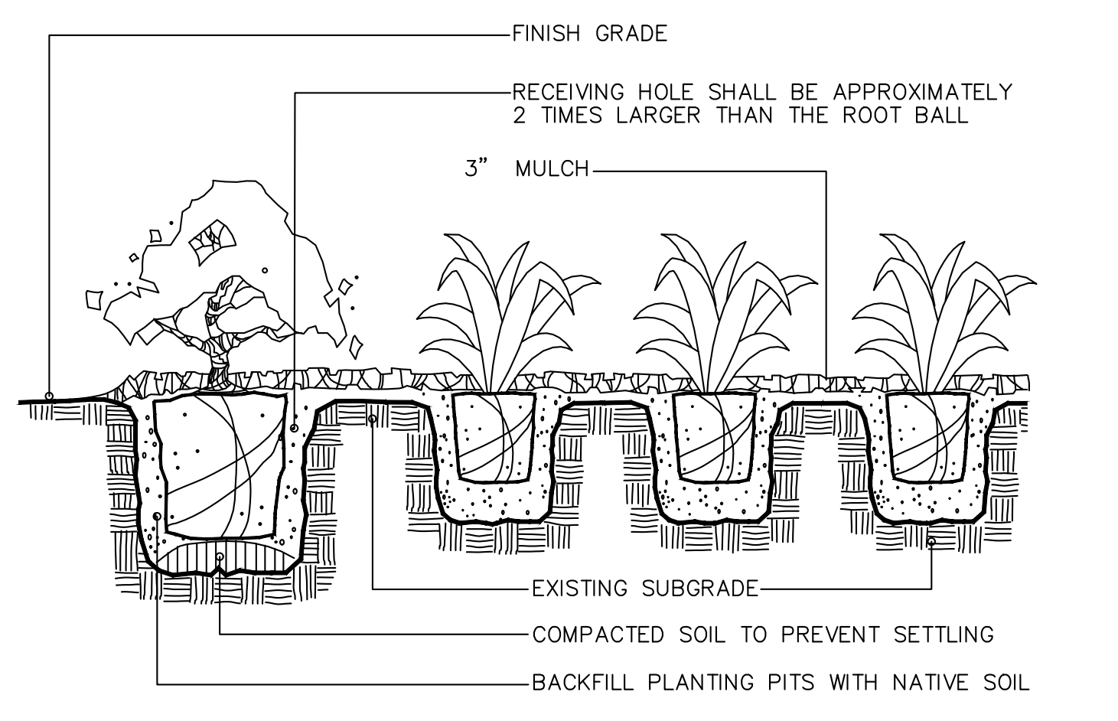
CIVIL DESIGN CONSULTANTS, INC.
344 North Main Street | Andover - MA 01810
(978) 476-0920 | www.cvildcc.com

DRAWING TITLE:

CONSTRUCTION DETAILS

DRAWING #:

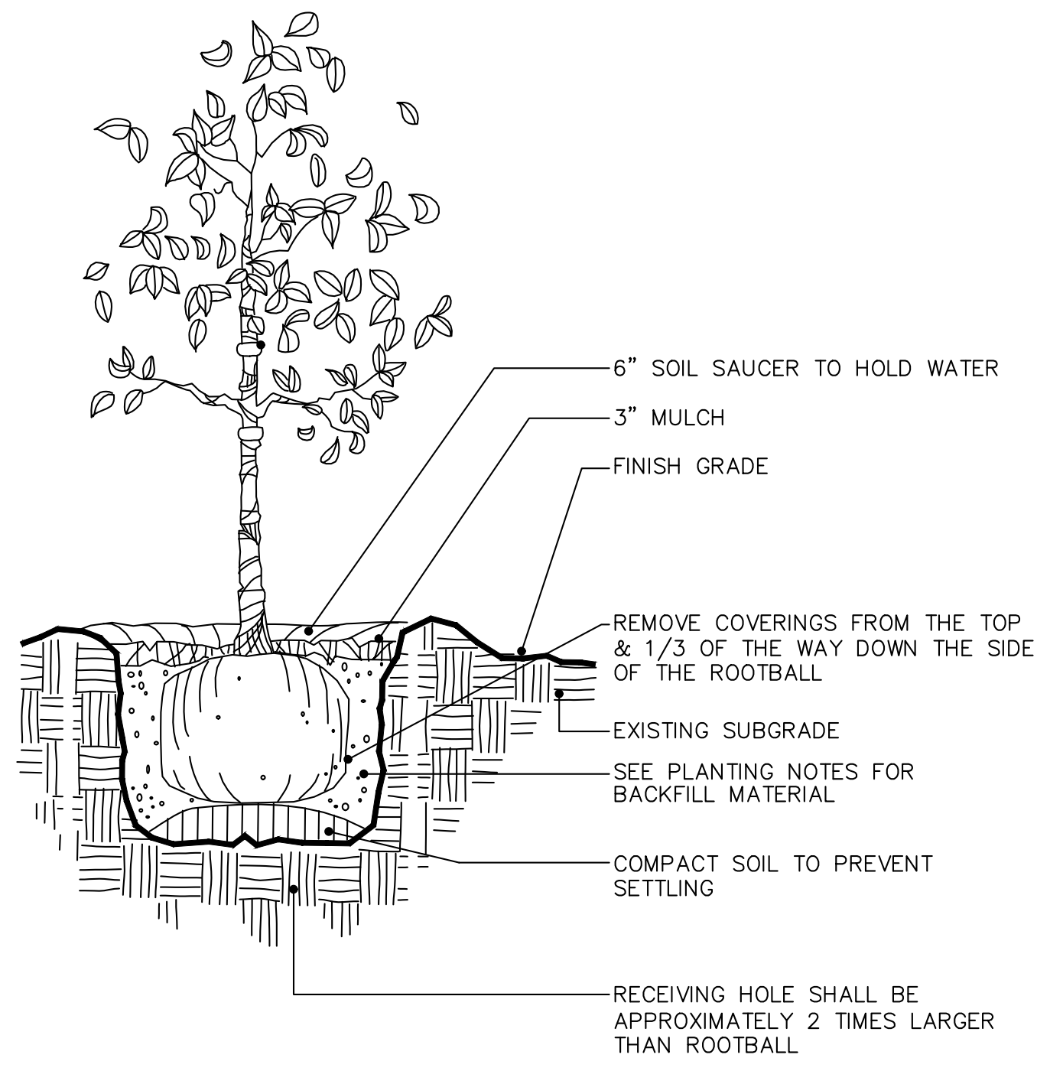
D-1



NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOV FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

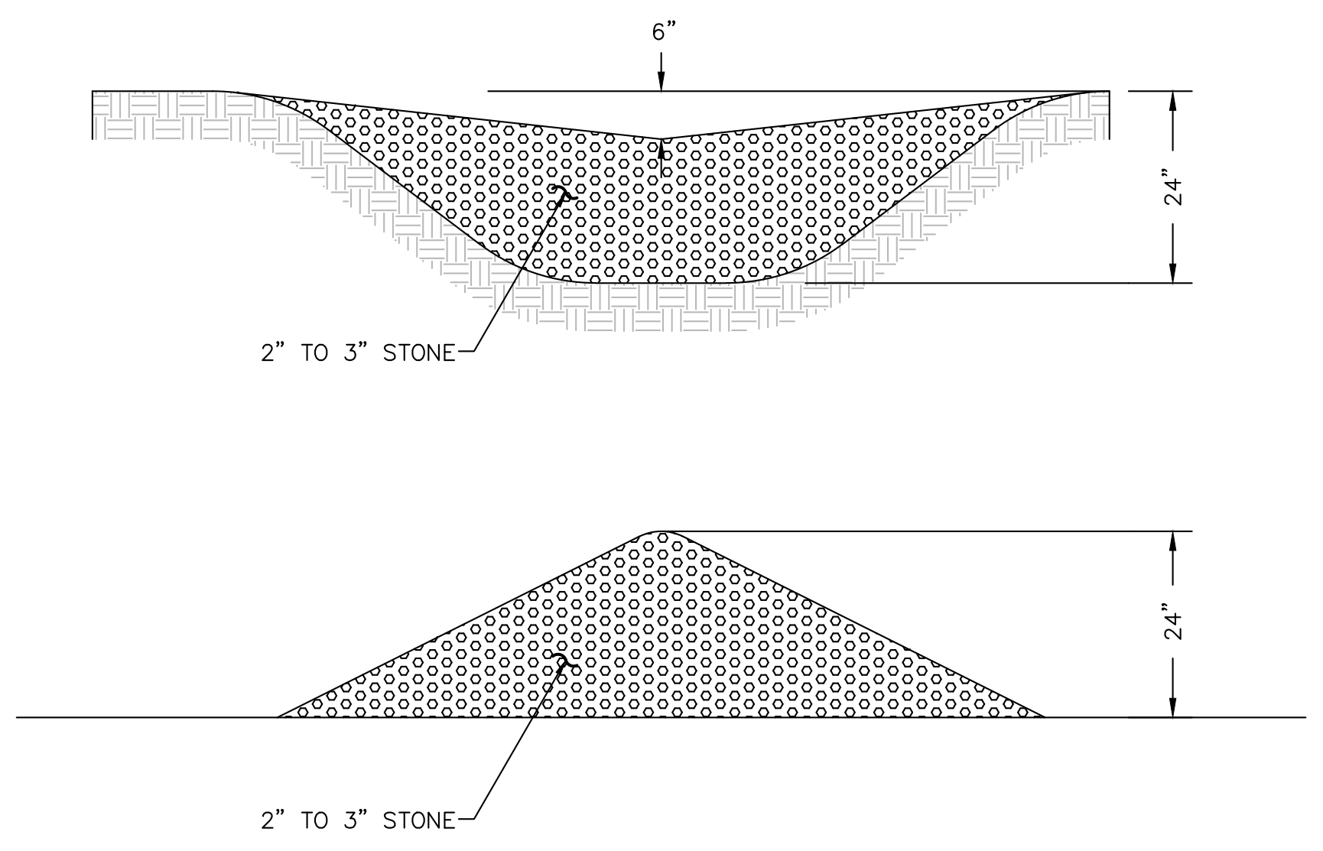
SHRUB/GROUND COVER PLANTING DETAIL

N.T.S.



SMALL TREE PLANTING/STAKING DETAIL

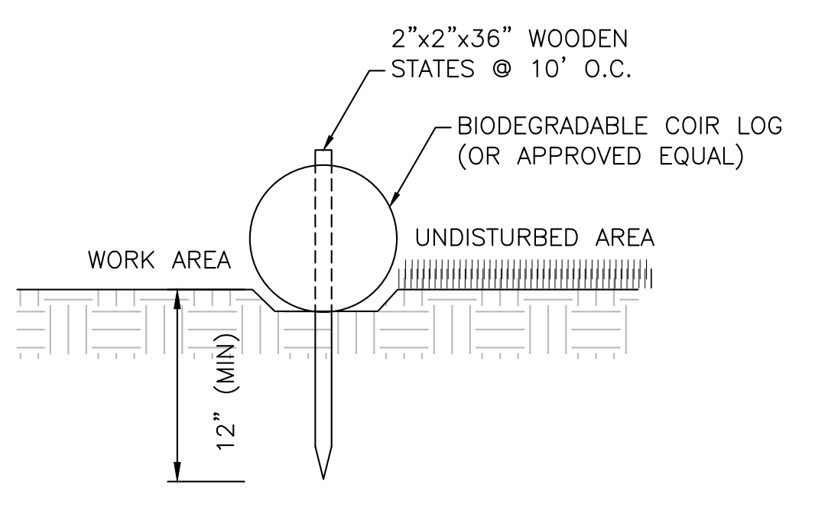
(TREES WITH 3" CAL. & SMALLER)
N.T.S.



NOTES:
1. STONE CHECK DAMS SHOULD BE MAINTAINED CONSISTENT WITH THE PROCEDURE AND SCHEDULE OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN.
2. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
3. STRUCTURES SHALL BE REMOVED FROM UPON SITE STABILIZATION.

TYPICAL STONE CHECK DAM DETAIL

NOT TO SCALE

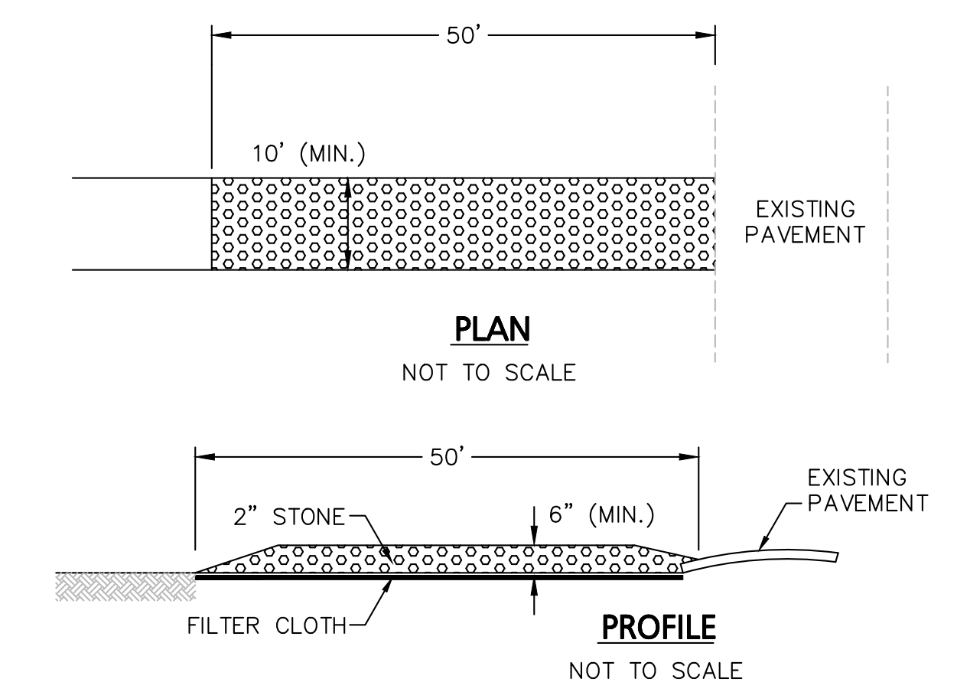


NOTES:

1. COIR LOGS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, REPLACE PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

BIODEGRADABLE COIR LOG INSTALLATION

NOT TO SCALE

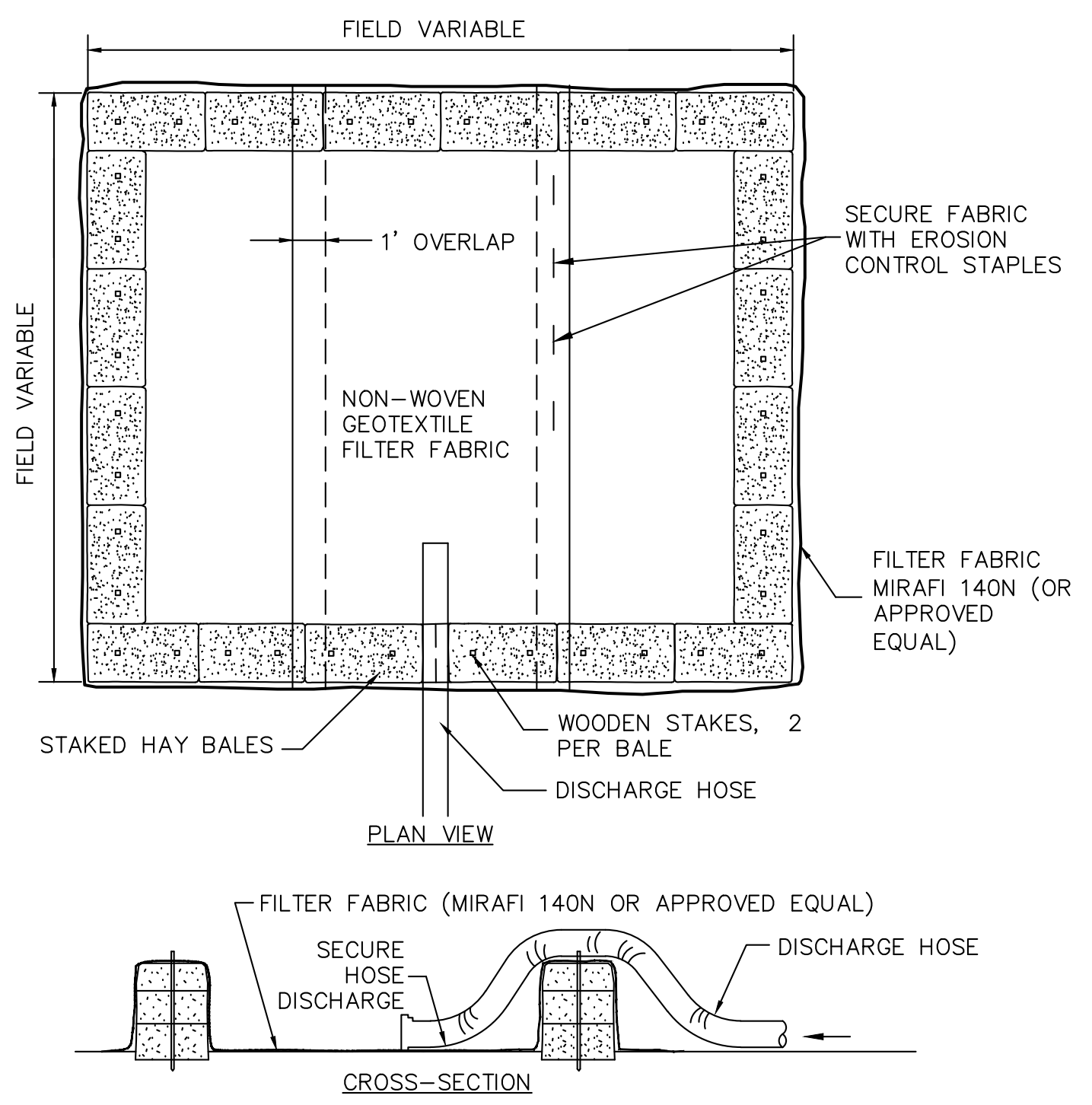


CONSTRUCTION SPECIFICATIONS:

1. USE 2" DIAMETER STONE OR RECLAIMED/RECYCLED CONCRETE EQUIVALENT.
2. RECOMMENDED LENGTH GREATER THAN 50 FEET WHERE PRACTICAL.
3. THICKNESS NOT LESS THAN 6 INCHES.
4. 10 FOOT MINIMUM WIDTH, BUT NOT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS AND EGRESS OCCUR.
5. FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WILL BE PERMITTED.
7. ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED BY THE CONTRACTOR.
9. REMOVE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO PLACEMENT OF BITUMINOUS CONCRETE PAVEMENT.

STABILIZED CONSTRUCTION ENTRANCE

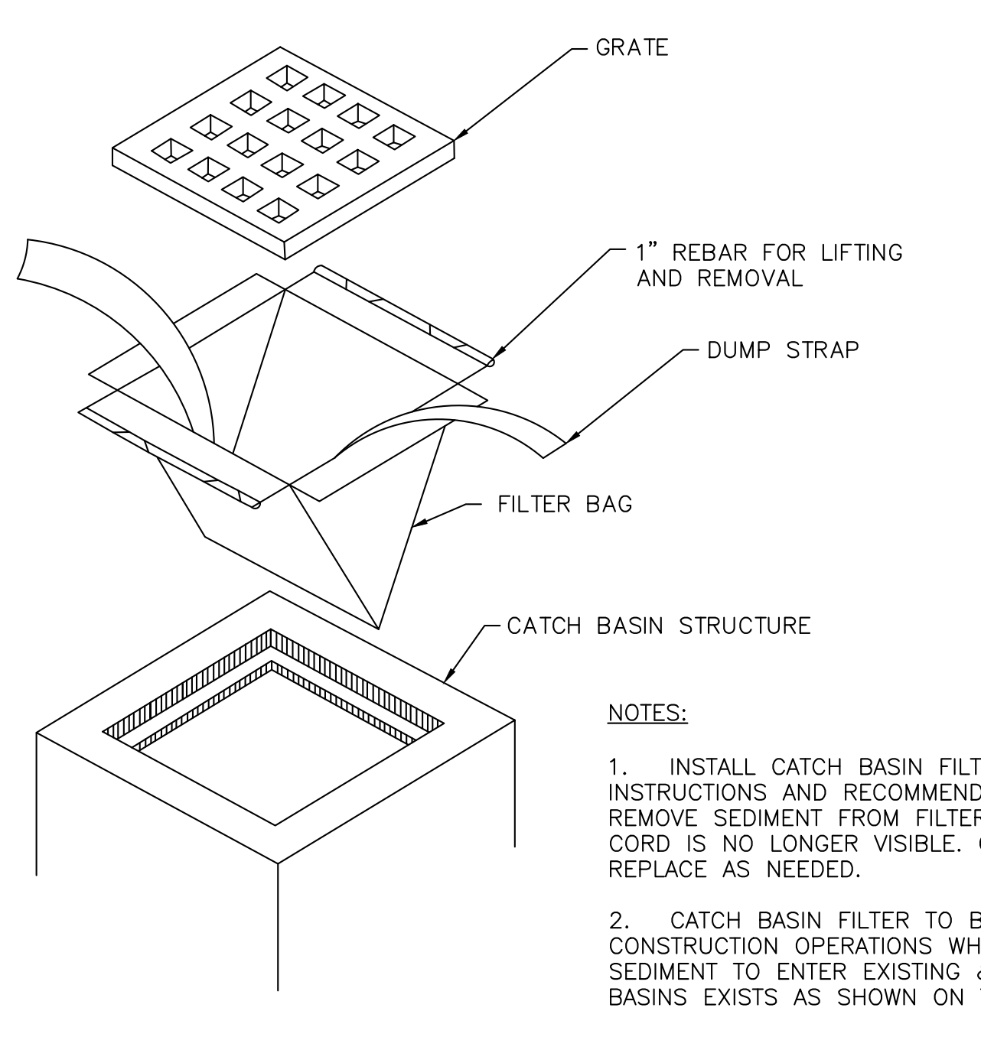
NOT TO SCALE



NOTES:
1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS.
2. BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.

DEWATERING HAYBALE BASIN

NOT TO SCALE



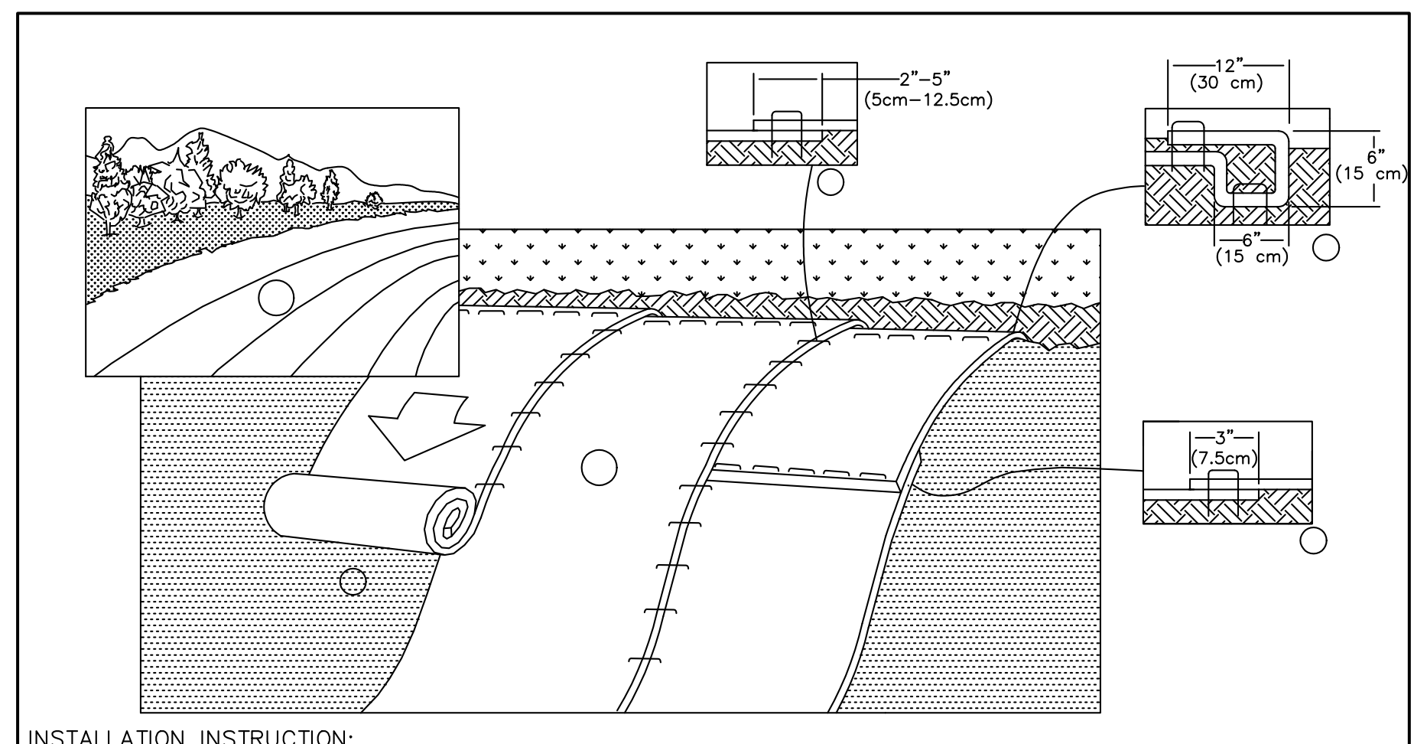
NOTES:

1. INSTALL CATCH BASIN FILTER PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM FILTER BAG WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.

2. CATCH BASIN FILTER TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & NEWLY CONSTRUCTED BASINS EXISTS AS SHOWN ON THE PLANS.

CATCH BASIN FILTER BAG

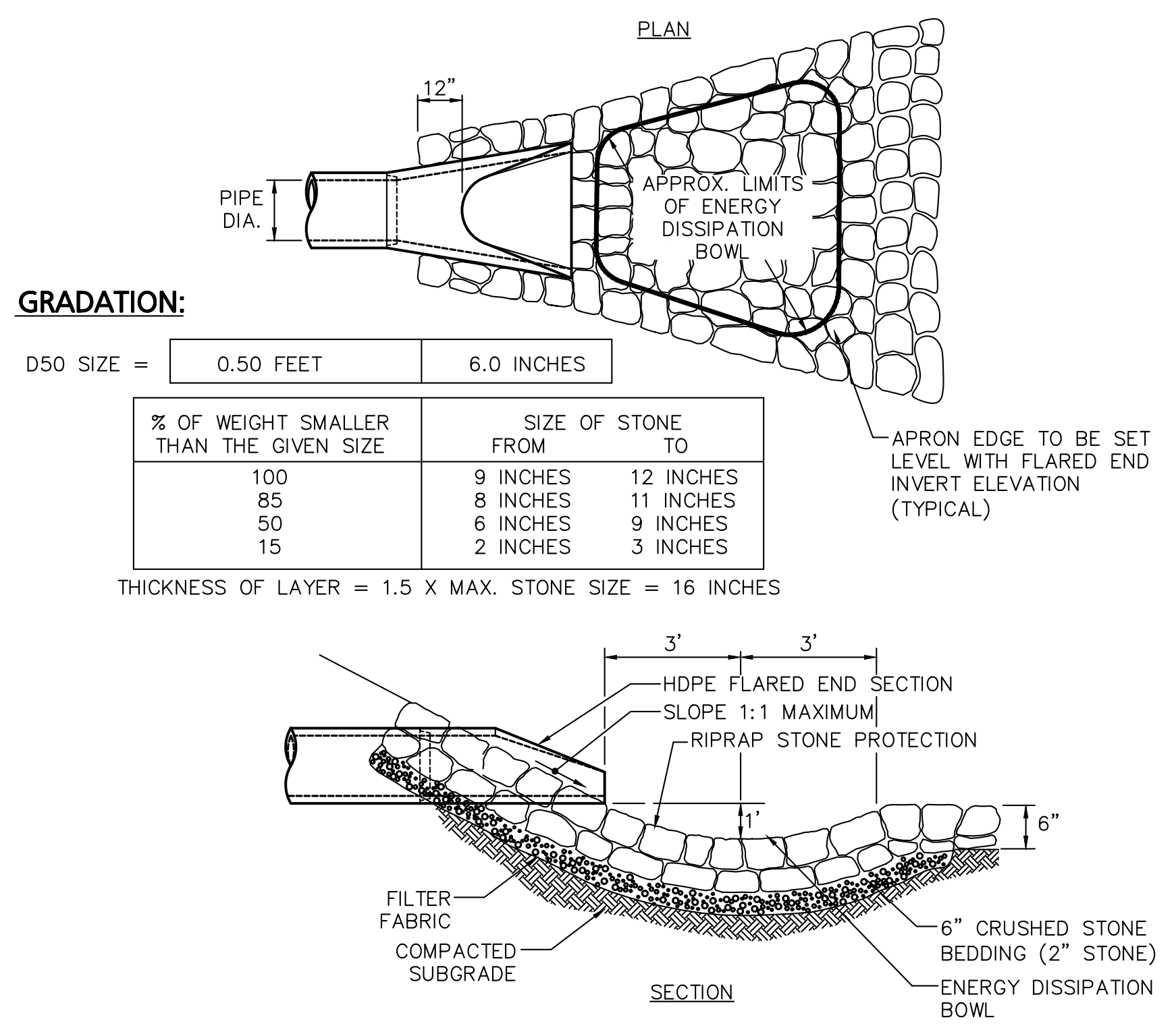
NOT TO SCALE



INSTALLATION INSTRUCTION:
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS) TYPE P300 PERMANENT TURF REINFORCING MAT BY NORTH AMERICAN GREEN OR APPROVED EQUAL INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECPS BACK OVER SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP'S WIDTH.

REINFORCED SLOPE DETAIL

NOT TO SCALE



GRADATION:

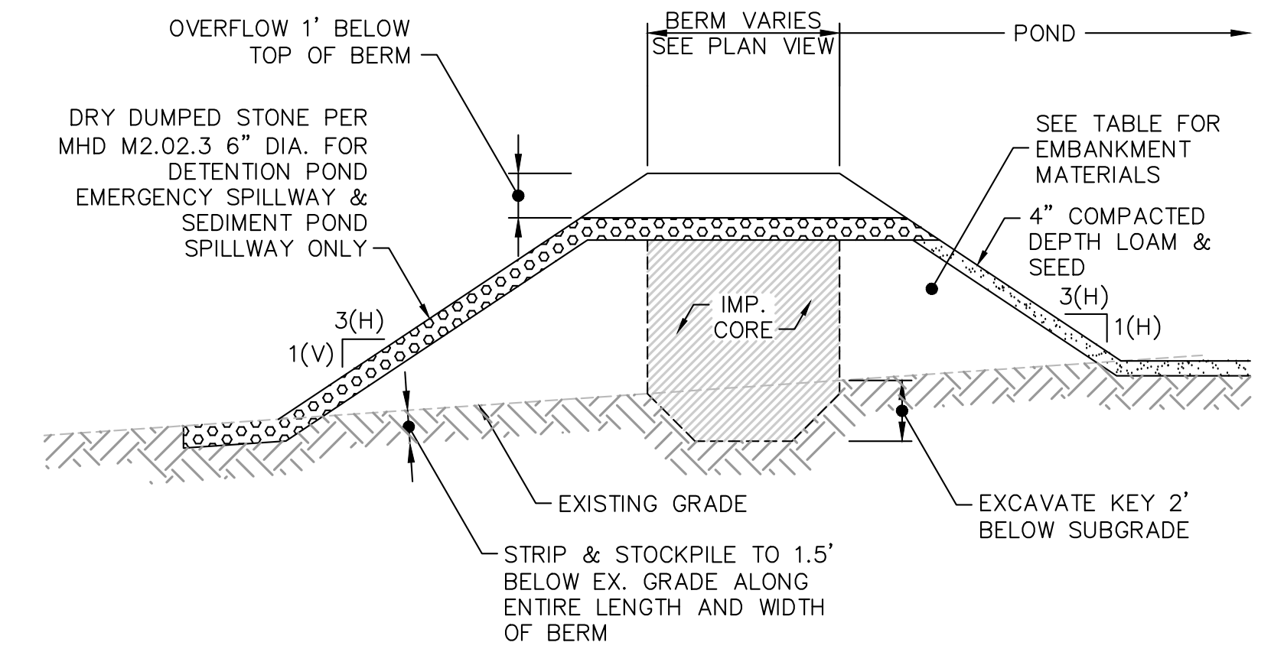
D50 SIZE =	0.50 FEET	6.0 INCHES

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE FROM	TO
100	9 INCHES	12 INCHES
85	8 INCHES	11 INCHES
50	6 INCHES	9 INCHES
15	2 INCHES	3 INCHES

THICKNESS OF LAYER = 1.5 X MAX. STONE SIZE = 16 INCHES

FLARED END SECTION WITH STONE PROTECTION

NOT TO SCALE

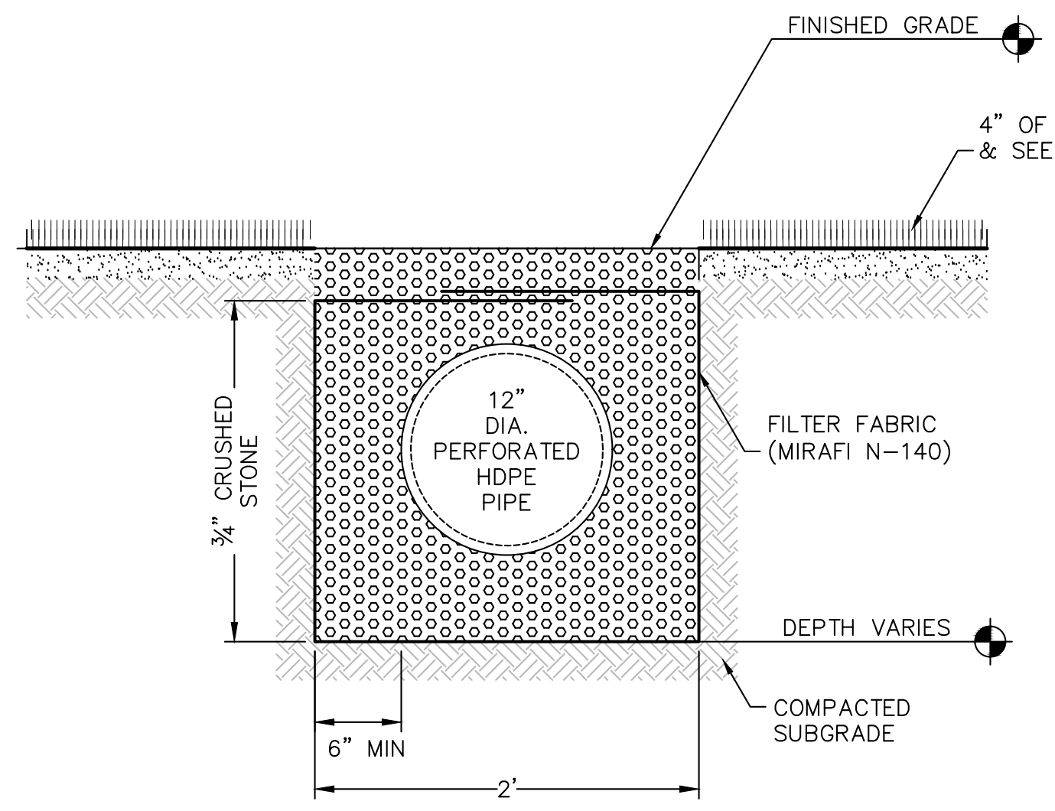


LOCATION	MATERIAL	MAX. PARTICLE SIZE (IN)	LOOSE LIFT THICKNESS (IN)	COMPACTION REQUIREMENTS (% MDD)[1]
KEY	NATIVE SOIL[2]	6	12 (MAX)	92%[3]
EMBANKMENT	NATIVE SOIL[2]	6	12 (MAX)	92%[3]
LOAM COVER	NATIVE TOPSOIL	1	8 (MIN)	80%
IMP. CORE	SOIL W/ AT LEAST 30% CLAY & SILT CONTENT	3	12 (MAX)	92%[3]

NOTES:
1. MDD: MAXIMUM DRY DENSITY.
2. ACCEPTABLE TO ENGINEER.
3. COMPACT TO TEST AVERAGE OF 92%, NO TEST LESS THAN 90.
4. DETAIL IS PROVIDED TO DEPICT THE CONSTRUCTION OF THE BERMS FOR ALL STORMWATER BASINS AND PONDS ON THE SITE.

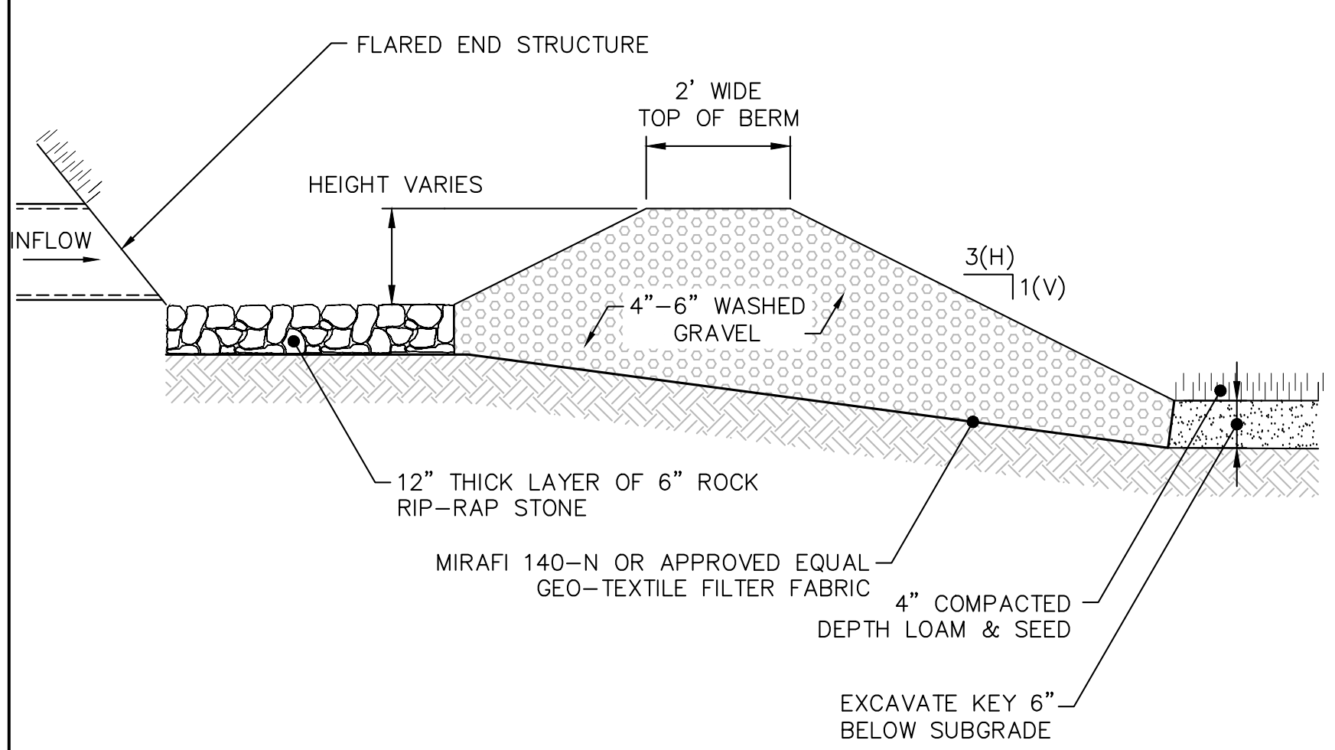
TYPICAL POND EMBANKMENT

NOT TO SCALE



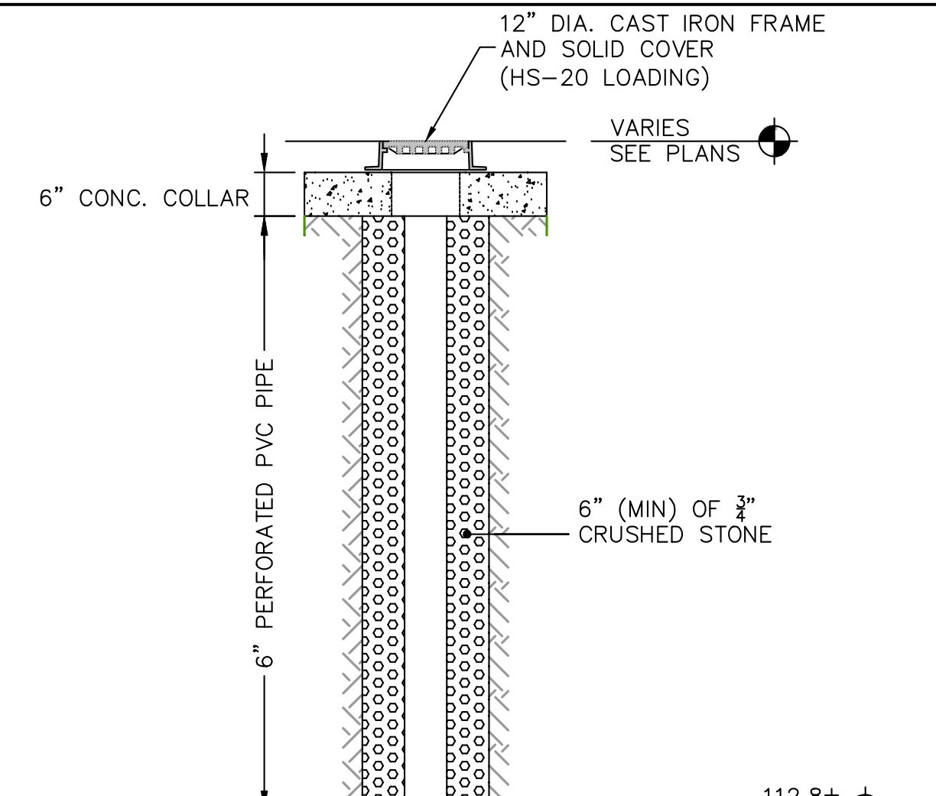
TYPICAL CONVEYANCE TRENCH DETAIL

NOT TO SCALE



PROPOSED SEDIMENT BASIN STONE BERM

NOT TO SCALE



MONITORING WELL

NOT TO SCALE

GENERAL EROSION CONTROL NOTES

1. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICE AS SHOWN ON THE PLAN. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED IN EFFECTIVE CONDITION DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION GENERAL PERMIT ISSUED BY THE EPA AND THE STORMWATER POLLUTION PREVENTION PLAN SUBMITTED WITH THE PERMIT DOCUMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE TIMELY INSTALLATION, INSPECTION, MAINTENANCE, AND/OR REPLACEMENT OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES TO ENSURE PROPER OPERATION THROUGHOUT THE LIFE OF THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF PERMANENT MEASURES UNTIL CONSTRUCTION OF THE PROJECT IS COMPLETED OR UNTIL IT IS ACCEPTED BY THE OWNER. THE OWNER IS RESPONSIBLE THEREAFTER.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CLEAN ROADS, CONTROL DUST, AND TAKE ALL NECESSARY MEASURES TO ENSURE THAT THE SITE AND ALL ROADS BE MAINTAINED IN A MUD AND DUST-FREE CONDITION AT ALL TIMES THROUGHOUT THE LIFE OF THE CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO, WATER, CALCIUM CHLORIDE, AND/OR CRUSHED STONE OR COARSE GRAVEL.
4. ALL PROPOSED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS AND DETAILS. ALL VEHICLE TRAFFIC ENTERING OR EXITING THE WORK AREA SHALL PASS OVER THE CONSTRUCTION ENTRANCES TO REDUCE THE TRACKING OR FLOWING OF SEDIMENT ONTO THE SURROUNDING ROADWAYS.
5. THE CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT CONTROL BARRIERS AS SHOWN ON THE SITE DEVELOPMENT PLANS. SILT FENCE SHALL ALSO BE INSTALLED AROUND ANY SOIL STOCKPILE AREAS.
6. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS AS CLOSELY AS POSSIBLE. AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESODDED, RESEEDED, OR OTHERWISE RESTORED TO THEIR ORIGINAL STATE. TREES AND OTHER EXISTING VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE.
7. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED TO ANY DISTURBED AREAS (INCLUDING SOIL STOCKPILE AREAS) THAT HAVE NOT YET REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS. THE RECOMMENDED TEMPORARY SEEDING DATES ARE MARCH 1 TO JUNE 15 AND AUGUST 15 TO OCTOBER 1.
8. PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO ALL DISTURBED AREAS THAT HAVE REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS PERMANENTLY CEASED. THE RECOMMENDED PERMANENT SEEDING DATES ARE APRIL 1 TO JUNE 15 AND AUGUST 15 TO OCTOBER 1.
9. AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHOULD BE MULCHED IMMEDIATELY FOLLOWING SEEDING IN ADDITION TO AREAS WHICH CANNOT BE SEEDED WITHIN THE RECOMMENDED SEEDING DATES AND ANY SOIL STOCKPILE AREAS. TEMPORARY MULCHING SHOULD BE PERFORMED AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS.
10. STRAW OR HAY MULCH, WOOD FIBER MULCH, AND HYDROMULCH ARE RECOMMENDED. THE MATERIALS USED IN MULCHING SHALL CONFORM TO THE REQUIREMENTS LISTED IN SECTION M6.04.0 OF THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES.
11. IF SEEDING CANNOT BE COMPLETED IMMEDIATELY OR WITHIN THE RECOMMENDED SEEDING DATES, USE THE TEMPORARY MULCHING MEASURE TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
12. ANY EXISTING OR PROPOSED CATCH BASINS THAT MAY BE SUBJECT TO SEDIMENTATION PROCESSES SHALL HAVE SILT SACKS INSTALLED TO PREVENT SEDIMENT FROM ENTERING THE PROPOSED STORM DRAINAGE SYSTEM PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED SITE. THE PROPER INLET PROTECTION DEVICES SHALL BE INSTALLED WHERE STORM DRAIN INLETS ARE TO BE MADE OPERATIONAL BEFORE PERMANENT STABILIZATION OF ANY DISTURBED DRAINAGE AREA.
13. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES AND VOLUME TWO OF THE MASSACHUSETTS STORM WATER MANAGEMENT HANDBOOK.
14. WASTE DISPOSAL: MATERIALS WHICH COULD BE A POTENTIAL SOURCE OF STORM WATER POLLUTION SUCH AS GASOLINE, DIESEL FUEL, HYDRAULIC OIL, ETC., SHALL BE STORED AT THE END OF EACH DAY IN A STORAGE TRAILER OR COVERED LOCATION AND TAKEN OFF-SITE AND PROPERLY DISPOSED OF. ALL TYPES OF WASTE GENERATED AT THIS SITE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH STATE LAW AND/OR REGULATIONS.
15. GOOD HOUSEKEEPING: THE PROJECT SITE SHALL PROVIDE FOR THE MINIMIZATION OF EXPOSURE OF CONSTRUCTION DEBRIS (INCLUDING, BUT NOT LIMITED TO, INSULATION, WIRING, PAINTS AND PAINT CANS, SOLVENTS, WALL BOARD, ETC.) TO PRECIPITATION BY MEANS OF DISPOSAL AND/OR PROPER SHELTER OR COVER. IN ADDITION, CONSTRUCTION WASTE MUST BE PROPERLY DISPOSED OF IN ORDER TO AVOID EXPOSURE TO PRECIPITATION AT THE END OF EACH WORKING DAY.
16. NO DUST WILL BE ALLOWED ON OR OFF WORK SITE. CONTRACTOR MUST CONDUCT CONTINUOUS EFFORT TO CONTROL DUST. LACK OF DUST CONTROL COULD CAUSE THE PROJECT TO BE STOPPED UNTIL ISSUES ARE RESOLVED.
17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTROL DUST AND TAKE ALL NECESSARY MEASURES TO ENSURE ALL ROADS ARE MAINTAINED IN A DUST FREE CONDITION AT ALL TIMES THROUGHOUT THE LIFE OF THE CONTRACT. REPETITIVE TREATMENTS SHOULD BE APPLIED AS NECESSARY.
18. REPAIRS OR REPLACEMENT OF DRAINAGE STRUCTURES, RIP RAP CHANNELS, OR OTHER ELEMENTS OF THE FACILITY SHOULD BE DONE WITHIN 14 DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR/REPLACEMENT MUST BE DONE IMMEDIATELY TO AVERT FAILURE OR DANGER TO NEARBY RESIDENTS.
19. IMMEDIATELY PRIOR TO THE END OF CONSTRUCTION OR ACCEPTANCE BY THE OWNER, THE CONTRACTOR SHALL INSPECT ALL ON-SITE STORMWATER MANAGEMENT FACILITIES AND CLEAN AND FLUSH AS NECESSARY.
20. THE GENERAL CONTRACTOR OR NOMINEE WILL BE THE PARTY RESPONSIBLE FOR THE INSPECTION, MAINTENANCE, AND REQUIRED DOCUMENTATION OF ALL STORM WATER STRUCTURES AS OUTLINED WITHIN.

MAINTENANCE REQUIREMENTS:

1. PERMANENT SEEDED AREAS SHOULD BE INSPECTED AT LEAST MONTHLY DURING THE COURSE OF CONSTRUCTION. INSPECTIONS, MAINTENANCE, AND CORRECTIVE ACTIONS SHOULD CONTINUE UNTIL THE OWNER ASSUMES PERMANENT OPERATION OF THE SITE.
2. SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION, WITH MOWING HEIGHT AND FREQUENCY DEPENDENT ON TYPE OF GRASS COVER.
3. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS.
4. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
5. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (E.G., MULCH) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

SITE PREPARATION:

1. INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
2. GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
3. RUNOFF SHOULD BE DIVERTED FROM THE SEEDED AREA.
4. ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.

SEEDBED PREPARATION:

1. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
2. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION.
3. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
4. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
5. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
6. IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
   - 6.1. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 600 POUNDS PER ACRE OR 13.8 POUNDS PER 1,000 SQUARE FEET OF LOW PHOSPHATE FERTILIZER1 (N-P205-K20) OR EQUIVALENT. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQUARE FEET).
   - 6.2. FERTILIZER SHOULD BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 FEET AND 250 FEET FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER.

SEEDING:

1. SELECT A SEED MIXTURE IN TABLE 4-2 THAT IS APPROPRIATE FOR THE SOIL TYPE AND MOISTURE CONTENT AS FOUND AT THE SITE, FOR THE AMOUNT OF SUN EXPOSURE AND FOR LEVEL OF USE. SELECT SEED FROM RECOMMENDATIONS IN TABLE 4-3.
2. INOCULATE ALL LEGUME SEED WITH THE CORRECT TYPE AND AMOUNT OF INOCULANT.
3. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR.
4. WHERE FEASIBLE, EXCEPT WHERE EITHER A CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
5. SPRING SEEDING USUALLY GIVES THE BEST RESULTS FOR ALL SEED MIXES OR WITH LEGUMES. PERMANENT SEEDING SHOULD BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST. WHEN CROWN VETCH IS SEEDED IN LATER SUMMER, AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SPECIFIED SEEDING DATES, MULCH ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING PRACTICE," AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
   - 5.1. TEMPORARY SEEDING SHOULD TYPICALLY OCCUR PRIOR TO OOSEPTEMBER 15TH.
   - 5.2. AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHOULD OOBE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE.
6. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION, AND COMPLETE PERMANENT SEED STABILIZATION DURING THE NEXT GROWING SEASON.

HYDROSEEDING:

1. WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
2. SLOPES MUST BE NO STEEPER THAN 2 TO 1 (2 FEET HORIZONTALLY TO 1 •FOOT VERTICALLY).
3. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
4. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.•

SEED MIXTURE BASED ON SOIL TYPE

		SOIL DRAINAGE			
USE	MIX	DROUGHTY	WELL DRAINED	MOD. WELL DRAINED	POORLY DRAINED
STEEP CUTS & FILLS BORROW & DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, & OTHER CHANNELS W/ FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, & LOW INTENSITY USE RECREATIONAL SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS & ATHLETIC FIELDS (TOPSOIL IS ESSENTIAL FOR GOOD TURF)	F	FAIR	EXCELLENT	EXCELLENT	(SEE NOTE 2)
	G	FAIR	EXCELLENT	EXCELLENT	(SEE NOTE 2)
GRAVEL PITS	SEE SOURCE DOCUMENTS FOR RECOMMENDATION, OR CONSULT W/ USDA NATURAL HERITAGE RESOURCE CONSERVATION SERVICE.				

SEED MIXTURE FOR PERMANENT VEGETATION

MIXTURE	SPECIES	POUND/ACRE	POUND / 1000-SF
A	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	REDTOP	2	0.05
	TOTAL	42	0.95
B(3)	TALL FESCUE	15	0.35
	CREEPING RED FESCUE	10	0.25
	CROWN VETCH	15	0.35
	OR		
	FLATPEA	30	0.75
	TOTAL	40 OR 55	0.95 OR 1.35
C(3)	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	BIRDSFOOT TREFOIL	8	0.20
	TOTAL	48	1.10
D(3)	BIRDSFOOT TREFOIL	10	0.25
	REDTOP	5	0.10
	REED CANARYGRASS(1)	15	0.35
	TOTAL	30	0.70
E	TALL FESCUE	20	0.45
	FLATPEA	30	0.75
	TOTAL	50	1.20
F	CREEPING RED FESCUE(2)	50	1.15
	KENTUCKY BLUEGRASS(2)	50	1.15
	TOTAL	100	2.30
G	TALL FESCUE(2)	150	3.60

NOTES:

1. REED CANARYGRASS IS ON THE INVASIVE SPECIES WATCH LIST DUE TO ITS RAPID, AGGRESIVE GROWTH AND ITS ABILITY TO MOVE INTO WETLANDS AND OUT-COMPETE OTHER DESIRABLE WETLAND PLANTS. CAUTION SHOULD BE USED WHEN PLANTED NEAR WETLANDS.
2. FOR HEAVY USE ATHLETIC FIELDS, CONSULT THE UNH COOP. EXTENSION TURF SPECIALIST FO CURRENT VARIETIES AND SEEDING RATES.
3. THE UNH COOP. EXTENSION RECOMMENDS RED CLOVER TO SUBSTITUTE FOR CROWN VETCH OR BIRDSFOOT TREFOIL IF THEY ARE GOING TO BE MOWED TO A HEIGHT OF 4" OR LESS, RED CLOVER *ALISKE VARIETY) SHOULD BE SEEDED AT A RATE OF 10 POUNDS PER ACRE.

05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
DATE	DESCRIPTION
REVISIONS	

APPLICANT:
THE HOMES AT
MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:
MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

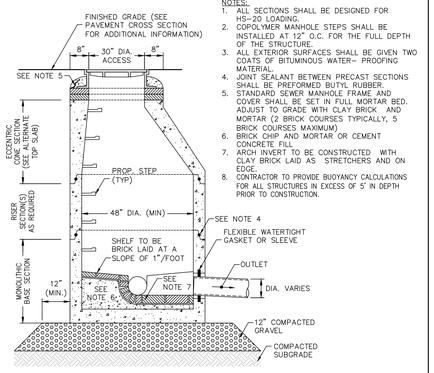
JAMES E. HANLEY
CIVIL
No. 47708

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC
344 North Main Street | Andover · MA 01810
(978) 416-0920 | www.civildci.com

DRAWING TITLE:
CONSTRUCTION
DETAILS

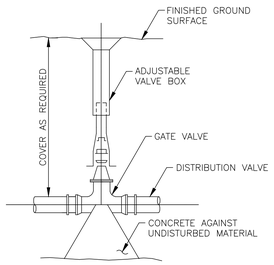
DRAWING #:
D-2



NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. ALL EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER- PROOFING MATERIAL.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. STANDARD SEWER MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)
6. BRICK CHIP AND MORTAR OR CEMENT CONCRETE FILL.
7. ARCH INVERT TO BE CONSTRUCTED WITH CLAY BRICK LAID AS STRETCHERS AND ON EDGE.
8. CONTRACTOR TO PROVIDE BUOYANCY CALCULATIONS FOR ALL STRUCTURES IN EXCESS OF 5' IN DEPTH PRIOR TO CONSTRUCTION.

STANDARD SANITARY SEWER MANHOLE

NOT TO SCALE



WATER GATE DETAIL

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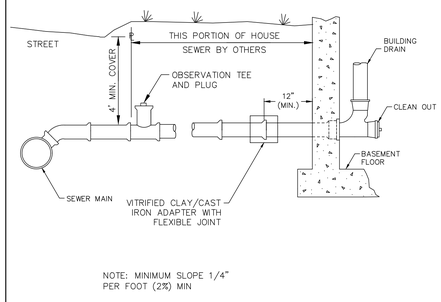
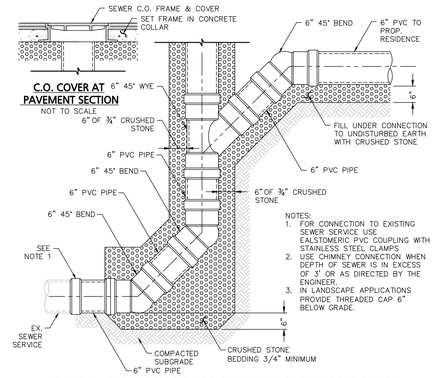


NOTE: MINIMUM SLOPE 1/4" PER FOOT (2%) MIN

SANITARY SEWER SERVICE AT BUILDING DETAIL

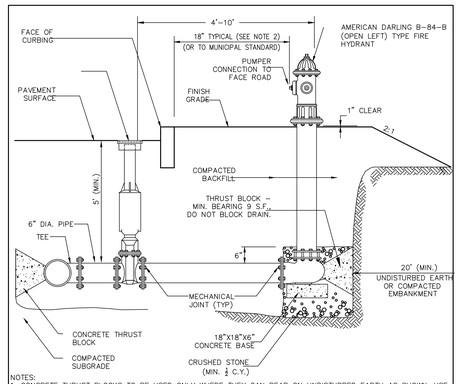
NOT TO SCALE



NOTES:
1. FOR CONNECTION TO EXISTING SEWER SERVICE USE EALSTOMERIC PVC COUPLING WITH STAINLESS STEEL CLAMPS.
2. USE CHIMNEY CONNECTION WHEN DEPTH OF SEWER IS IN EXCESS OF 3' OR AS DIRECTED BY THE ENGINEER.
3. IN LANDSCAPE APPLICATIONS PROVIDE THREADED CAP 6" BELOW GRADE.

TYPICAL SANITARY SEWER CHIMNEY CLEAN-OUT DETAIL

NOT TO SCALE



NOTES:
1. CONCRETE THRUST BLOCKS TO BE USED ONLY WHERE THEY CAN BEAR ON UNDISTURBED EARTH AS SHOWN. USE CLAMPS AND TIE RODS OR OTHER ACCEPTABLE METHOD OF JOINT RESTRAINT WHERE SOIL CONDITIONS PROHIBIT THE USE OF THRUST BLOCKS.
2. HYDRANT IN SIDEWALK AREAS TO BE LOCATED TO PROVIDE MINIMUM CLEAR SIDEWALK PASSAGE WIDTH OF 3 FEET AT HYDRANT.

HYDRANT CONNECTION

NOT TO SCALE

TABLE OF DIMENSIONS

BENDS	B	C	D	E	F	BENDS	B	C	D	E	F
6" 111/4°	8"	15"	12"	24"	12"	6" 45°	8"	30"	12"	24"	14"
6" 221/2°	-	19"	-	-	13"	6" 90°	-	30"	-	-	27"
8" 111/4°	-	20"	-	-	12"	8" 45°	-	30"	-	-	24"
8" 221/2°	-	22"	-	-	17"	8" 90°	-	38"	-	-	36"
12" 111/4°	-	30"	-	-	15"	12" 45°	-	40"	-	-	40"
12" 221/2°	-	35"	-	-	25"	12" 90°	-	60"	-	-	52"

BENDS

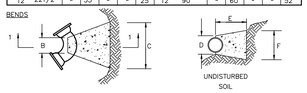
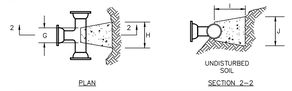


TABLE OF DIMENSIONS

TEES	G	H	I	J	TEES	G	H	I	J
6"x 6"x 6"	12"	24"	24"	18"	12"x 12"x 6"	12"	24"	24"	18"
8"x 8"x 6"	-	-	-	-	12"x 12"x 8"	-	-	-	24"
8"x 8"x 8"	-	-	-	24"	12"x 12"x 12"	-	36"	-	36"

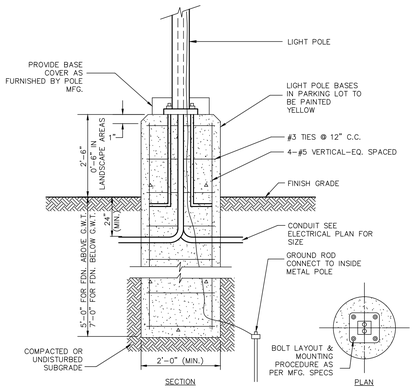
TEES



NOTES:
1. PROVIDE BLOCKS FOR TAPPING SLEEVES, DEAD ENDS, GATE VALVES, AND VERTICAL BENDS (SAME SIZE AS REQUIRED FOR TEES). PROVIDE ANCHOR RODS AT VERTICAL BENDS AND GATE VALVES.
2. CONCRETE SHALL NOT BE PLACED AGAINST PIPE BEYOND FITTING.
3. CONCRETE SHALL BE 3000 PSI-TYPE I

CONCRETE THRUST BLOCK

NOT TO SCALE



LIGHT POLE FOUNDATION

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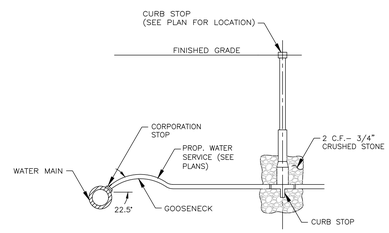
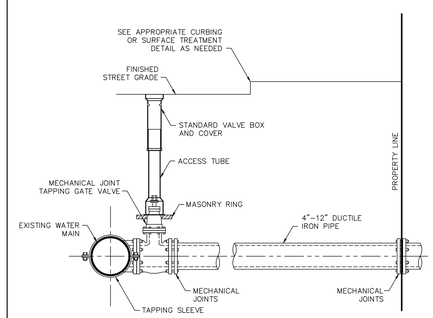


TYPICAL WATER SERVICE CONNECTION

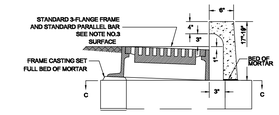
NOT TO SCALE



NOTES:
1. CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
2. USE RESTRAINED JOINT FITTINGS OR TIE RODS WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
3. SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR SPECIFIC CONDITIONS.

TYPICAL TAPPING SLEEVE AND VALVE DETAIL

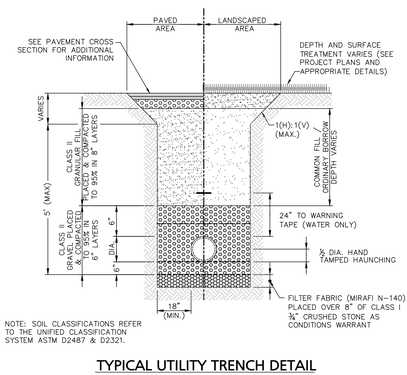
NOT TO SCALE



CURB INLET FRAME/GRATE CONFIGURATION TO BE USED AS-NEEDED. REFER TO TYPICAL CATCH BASIN DETAIL FOR REMAINDER OF STRUCTURE

TYPICAL CURB INLET FRAME/GRATE

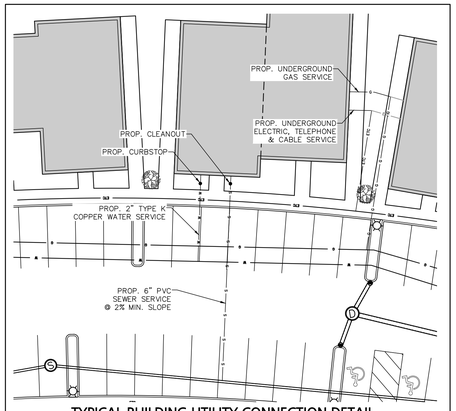
NOT TO SCALE



NOTE: SOIL CLASSIFICATIONS REFER TO THE UNIFIED CLASSIFICATION SYSTEM ASTM D2487 & D2321.

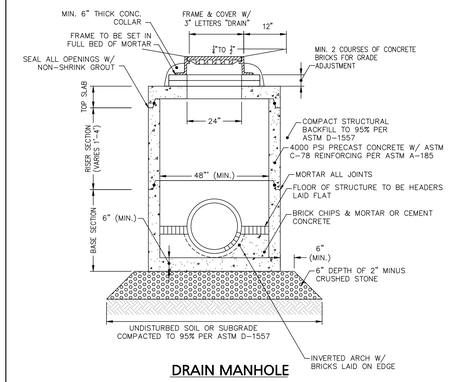
TYPICAL UTILITY TRENCH DETAIL

NOT TO SCALE



TYPICAL BUILDING UTILITY CONNECTION DETAIL

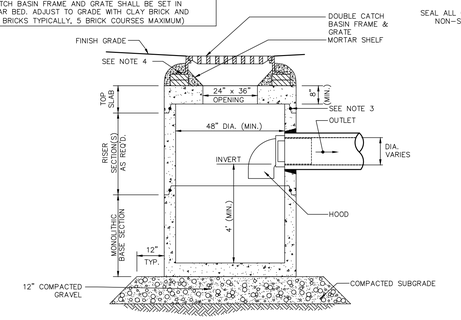
SCALE: 1"=20'



DRAIN MANHOLE

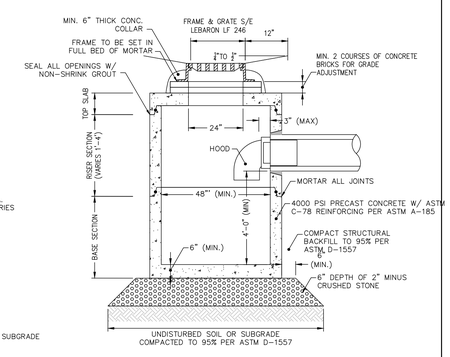
NOT TO SCALE

NOTES
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
4. DOUBLE CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICKS TYPICALLY, 5 BRICK COURSES MAXIMUM)



TYPICAL DOUBLE GRATE DEEP SUMP CATCH BASIN WITH HOOD

NOT TO SCALE

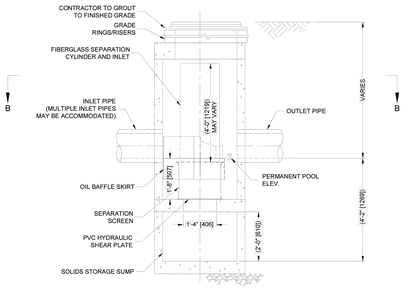


TYPICAL DEEP SUMP CATCH BASIN

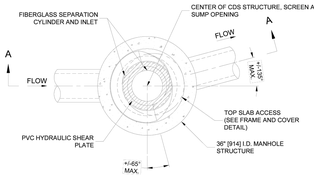
NOT TO SCALE

GENERAL UTILITY NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.
2. WHERE SANITARY SEWERS CROSS WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT , THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL-JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHENEVER IT IS IMPOSSIBLE TO OBTAIN VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
3. ALL UTILITY WORK PERFORMED WITHIN RIGHT-OF-WAY SHALL BE PERFORMED BY A CONTRACTOR LICENSED BY THE DPW AND OBTAIN A PERMIT FOR SUCH WORK FROM THE DPW, IF NEEDED.
4. ALL DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
5. A DUST EMISSION CONTROL PLAN SHALL BE DEVELOPED AND IMPLEMENTED BY THE CONTRACTOR IF CONDITIONS WARRANT.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL UTILITIES AS SHOWN ON THESE PLANS IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY SPECIFICATIONS. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THE APPROPRIATE UTILITY COMPANY STANDARDS FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING SPECIFICATIONS OF MATERIALS AND INSTALLATION PROCEDURES AND INSTALL IN ACCORDANCE WITH APPLICABLE REGULATIONS.
7. THE CONTRACTOR IS RESPONSIBLE TO CONTACT AND DETERMINE, COORDINATE AND SCHEDULE ALL NECESSARY INSPECTIONS AND MONITORING WITH ALL APPROPRIATE UTILITY COMPANIES.
8. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO PERFORM THE WORK.
9. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE PROJECT BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE RESTORATION AND CLEAN UP UPON COMPLETION OF THE PROJECT.
11. WATER AND SEWER TESTING TO CONFORM TO LOCAL DPW REGULATIONS.
12. ALL MECHANICAL JOINTS TO BE MEGALUG SERIES 1100 INSTALLED IN ACCORDING WITH MANUFACTURER RECOMMENDATIONS OR APPROVED EQUAL.
13. ALL SEWER SYSTEM MAINS, STRUCTURES, AND CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL REGULATIONS.
14. CONTRACTOR TO COORDINATE ALL BUILDING PENETRATIONS AND ROOF LEADER LOCATIONS WITH ARCHITECTURAL DOCUMENTS PRIOR TO CONSTRUCTION.



ELEVATION A-A
N.T.S.



PLAN VIEW B-B
N.T.S.

FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS1515-3-C DESIGN NOTES

CDS1515-3-C RATED TREATMENT CAPACITY IS 1.0 CFS. OR PER LOCAL REGULATIONS.

THE STANDARD CDS1515-3-C CONFIGURATION IS SHOWN.

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE OR www.contechES.com.
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS1515-3-C
ONLINE CDS
STANDARD DETAIL

05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
DATE	DESCRIPTION
REVISIONS	

APPLICANT:
THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:
MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

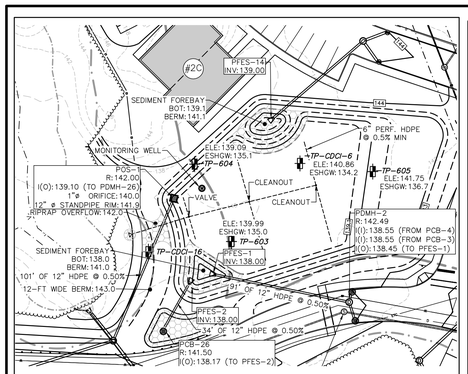
COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC.
344 North Main Street | Andover - MA 01810
(978) 416-0920 | www.civildci.com

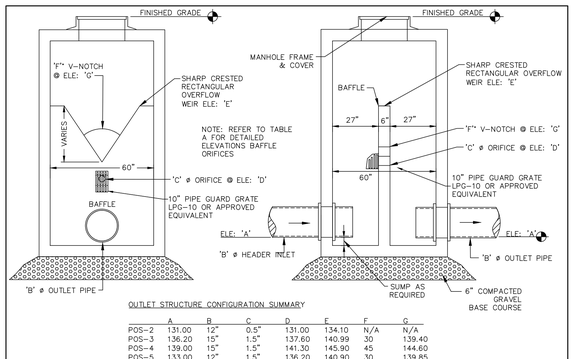
DRAWING TITLE:
CONSTRUCTION DETAILS

DRAWING #:
D-3



INFILTRATION BASIN IB-1

SCALE: 1"=40'

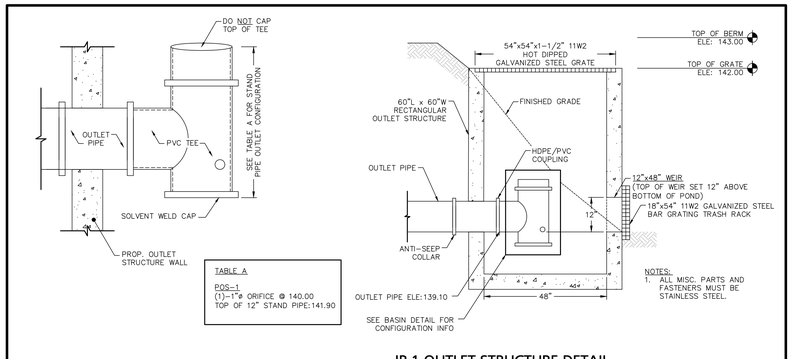


OUTLET STRUCTURE CONFIGURATION SUMMARY

	A	B	C	D	E	F	G
POS-2	131.00	12"	0.5"	131.00	134.10	N/A	N/A
POS-3	136.20	15"	1.5"	137.60	140.99	30	139.40
POS-4	139.00	15"	1.5"	141.30	145.90	45	144.60
POS-5	133.00	12"	1.5"	136.20	140.90	30	139.85

SUBSURFACE SYSTEM OUTLET STRUCTURE

NOT TO SCALE

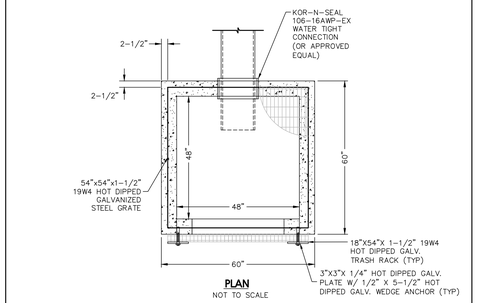


IB-1 OUTLET STRUCTURE DETAIL

NOT TO SCALE

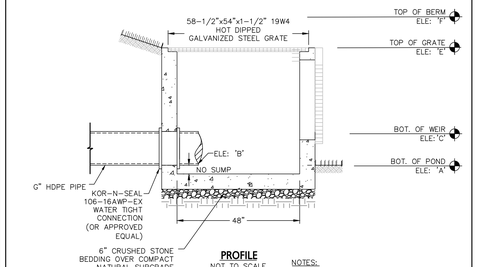
OUTLET STRUCTURE CONFIGURATION SUMMARY

	A	B	C	D	E	F	G
POS-6	145.00	145.00	146.40	45	147.40	147.50	15"
POS-7	144.10	144.00	145.60	30	146.95	147.00	12"



PLAN

NOT TO SCALE

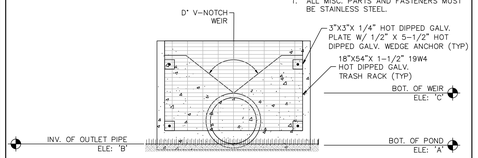


PROFILE

NOT TO SCALE

NOTES:

1. ALL MISC. PARTS AND FASTENERS MUST BE STAINLESS STEEL.



POS-6 & POS-7 DETAIL

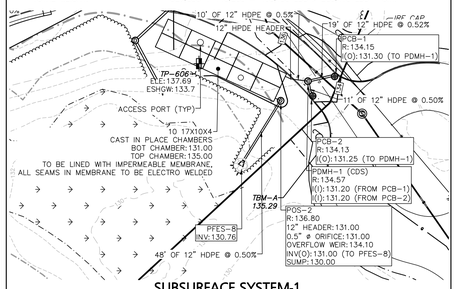
NOT TO SCALE

NOTES:

1. SUBSURFACE SYSTEM TO BE LINED WITH MINIMUM 30MIL HDPE POLYBARRIER AND CONSTRUCTED IN ACCORDANCE WITH ALL MANUFACTURER CONSTRUCTION SPECIFICATIONS.

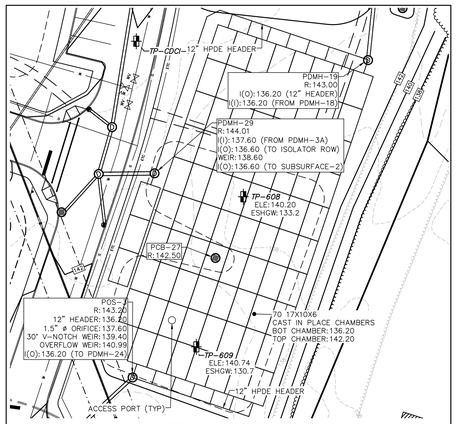
2. BUOYANCY CALCULATIONS:

SYSTEM FOOTPRINT:	1,700 SF	
GROUNDWATER ELEVATION:	133.7'±	
BOTTOM OF SYSTEM:	131.00'	
WEIGHT OF DISPLACED WATER:	(133.7'−131.00') X 1,700 SF X 62.4 PCF	= 286,416 LBS
VOLUME OF CONCRETE:	357 SF X 4FT	= 1,428 CF
LESS 13 4X4 OPENINGS:	1,428 CF − (13 X 1FT X 4FT X 4FT)	= 1,220 CF
PLUS 10 17X10 COVERS:	1,220 CF + (10 X 17 FT X 10 FT X 0.66 FT)	= 2,342 CF
WEIGHT OF CONCRETE:	2,342 CF X 140 PCF	= 327,880 LBS
WEIGHT OF SOIL BACKFILL:	0.75' (MIN COVER) X 1,700 SF X 110 PCF	= 140,250 LBS
TOTAL WEIGHT:	327,880 + 140,250 = 468,130 LBS > 286,416 LBS	O.K.



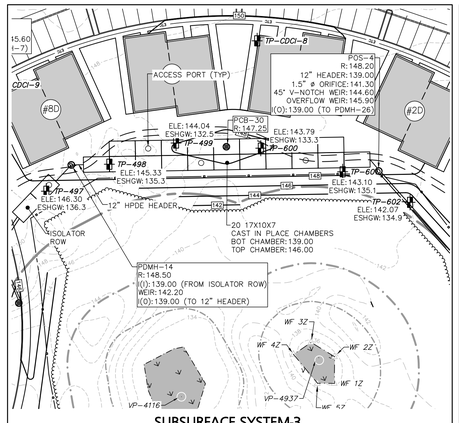
SUBSURFACE SYSTEM-1

SCALE: 1"=40'



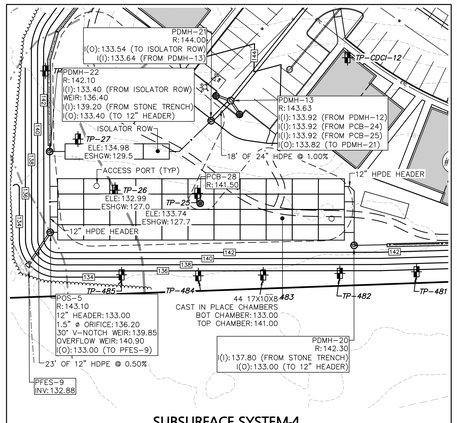
SUBSURFACE SYSTEM-2

SCALE: 1"=40'



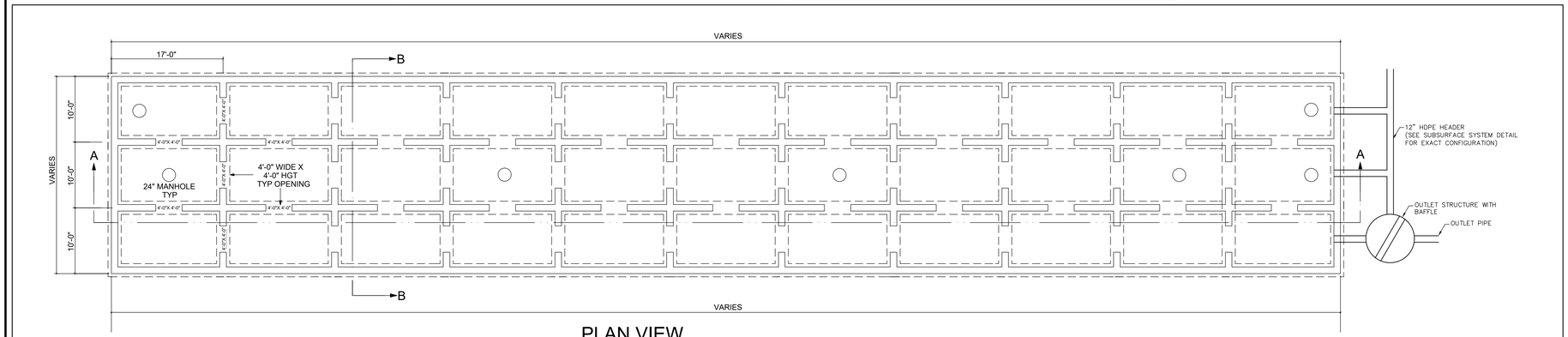
SUBSURFACE SYSTEM-3

SCALE: 1"=40'

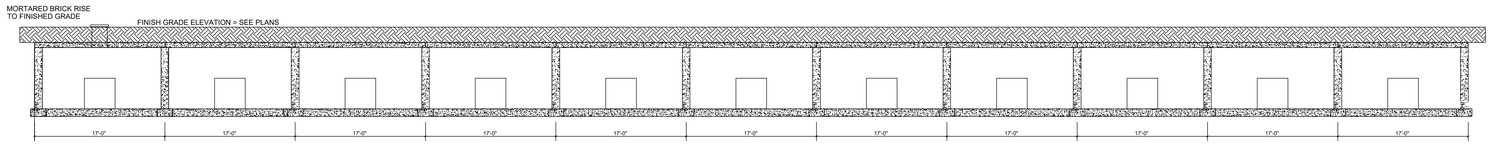


SUBSURFACE SYSTEM-4

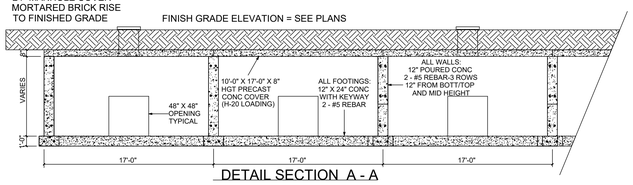
SCALE: 1"=40'



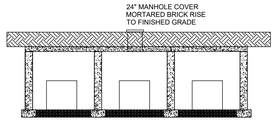
PLAN VIEW



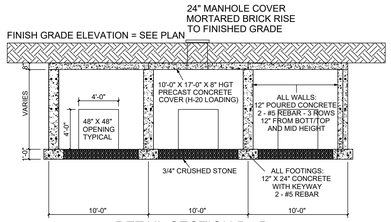
SECTION A - A



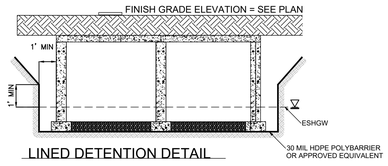
DETAIL SECTION A - A



SECTION B - B



DETAIL SECTION B - B



LINED DETENTION DETAIL

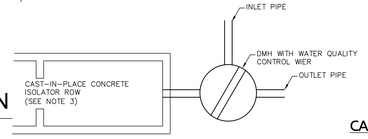
NOTES:

1. 30 MIL HDPE POLYBARRIER (OR APPROVED EQUIVALENT) TO BE INSTALLED IN ACCORDANCE WITH ALL MANUFACTURER SPECS.
2. 12" HDPE PENETRATIONS TO BE SEALED IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS. LINING TO EXTEND 1−FT BEYOND LIMIT OF 12" HDPE HEADER TO MINIMIZE REQUIRED LINING PENETRATIONS.
3. 12" HDPE HEADER(S) TO BE SET FLUSH WITH THE BOTTOM OF THE STRUCTURE.

NOTES:

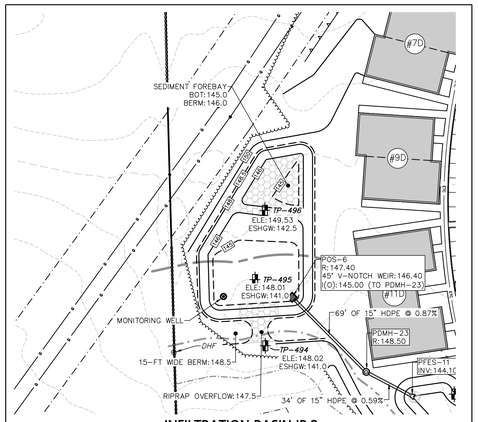
1. 12" HDPE HEADER PENETRATIONS TO BE SEALED WITH MORTAR.
2. 12" HDPE HEADER(S) TO BE SET FLUSH WITH THE BOTTOM OF THE STRUCTURE.
3. WHERE CAST−IN−PLACE SUBSURFACE CHAMBERS ARE TO BE USED AS ISOLATOR ROWS, THE CHAMBERS SHALL BE WRAPPED IN FILTER FABRIC.

TYP. ISOLATOR ROW PIPE CONFIGURATION



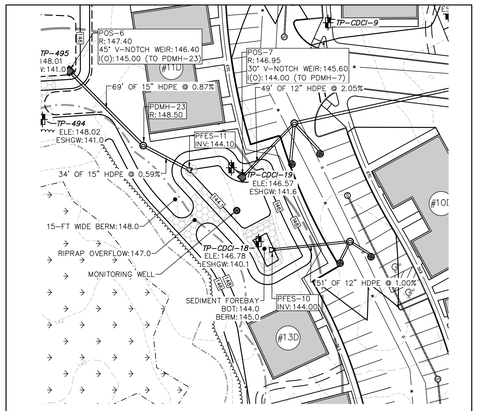
CAST-IN-PLACE SUBSURFACE CHAMBER DETAIL

NOT TO SCALE



INFILTRATION BASIN IB-2

SCALE: 1"=40'



INFILTRATION BASIN IB-3

SCALE: 1"=20'

REVISIONS	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS
DATE	DESCRIPTION

APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 22, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC
344 North Main Street | Andover - MA 01810
(978) 475-0920 | www.civildci.com

DRAWING TITLE:

CONSTRUCTION DETAILS

DRAWING #:

D-4

TEST PIT LOGS

Address: Murhpy's Farm, Dracut, MA
Date: 12/7/2023
S.E.: William Hall
Witness: Tina Rivard

Note: Areas where test pits were performed have been stripped of top and subsoil.

CDCI-1

Depth	Horizon	Color	Texture
0-120	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-2

Depth	Horizon	Color	Texture
0-132	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-3

Depth	Horizon	Color	Texture
0-156	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-4

Depth	Horizon	Color	Texture
0-120	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-5

Depth	Horizon	Color	Texture
0-126	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-6

Depth	Horizon	Color	Texture
0-24	Fill	-----	-----
24-80	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed
Ledge encountered at 80"

CDCI-7

Depth	Horizon	Color	Texture
0-72	Sandy Fill	-----	-----

Not mottling observed
No water observed
Ledge encountered at 72"

CDCI-8

Depth	Horizon	Color	Texture
0-80	C1	10YR5/4	Coarse Sand
80-144	C2	10YR6/3	Loamy Sand

Many cobbles and stones in C1 layer
Not mottling observed
No water observed

CDCI-9

Depth	Horizon	Color	Texture
0-102	C1	10YR5/4	Coarse Sand
102-144	C2	10YR6/3	Loamy Sand

Many cobbles and stones in C1 layer
Not mottling observed
No water observed

CDCI-10

Depth	Horizon	Color	Texture
0-84	C1	10YR5/4	Coarse Sand
84-136	C2	10YR6/3	F. Loamy Sand

Many cobbles and stones in C1 layer
Mottling @ 72"
Weeping @ 84"

CDCI-11

Depth	Horizon	Color	Texture
0-90	C1	10YR5/4	Coarse Sand
90-166	C2	10YR6/3	F. Loamy Sand

Many cobbles and stones in C1 layer
Mottling @ 128"
Weeping @ 160"

CDCI-12

Depth	Horizon	Color	Texture
0-80	C1	10YR5/4	Coarse Sand
80-144	C2	10YR6/3	F. Loamy Sand

Many cobbles and stones in C1 layer
Mottling @ 112"
Weeping @ 144"

Address: Murphy's Farm, Dracut, MA
Date: 4/3/2024
S.E.: Thomas Schomburg
Witness: N/a

Note: Test pits CDCI-14 - CDCI-23 performed in areas that have been stripped of top and subsoil. Soil has begun to weather.

CDCI-13

Depth	Horizon	Color	Texture
0-16	A	10YR3/2	Sandy Loam
16-36	B	10YR5/6	Sandy Loam
36-80	C	10YR5/3	Sandy Loam

Mottling @ 32"
Water @ 40"

CDCI-14

Depth	Horizon	Color	Texture
0-16	A	10YR3/2	Sandy Loam
16-32	B	10YR5/6	Sandy Loam
32-108	C	10YR5/3	Sandy Loam

Mottling @ 30"
Water @ 30"

CDCI-15

Depth	Horizon	Color	Texture
0-12	A	10YR3/2	Sandy Loam
12-32	B	10YR5/6	Sandy Loam
32-96	C	10YR5/3	Sandy Loam

Mottling @ 30"
Water @ 30"

CDCI-16

Depth	Horizon	Color	Texture
0-48	FILL	-----	-----
48-80	C	10YR5/3	Loamy Sand

Mottling @ 56"
Water @ 72"
Ledge @ 80"

CDCI-17

Depth	Horizon	Color	Texture
0-16	B	10YR5/6	Fine Sand
16-80	C	10YR5/3	Fine Sand
80-108	C2	10YR5/3	Gravelly Sand

Many cobbles and stones in C Layer
C2 Layer primarily gravel
Mottling @ 24"
Water @ 80"

CDCI-18

Depth	Horizon	Color	Texture
0-24	B	10YR5/6	Sand
24-104	C	10YR5/3	Gravelly Sand

Many cobbles and stones in C Layer
Mottling @ 80"
No water observed

CDCI-19

Depth	Horizon	Color	Texture
0-12	B	10YR5/6	Sand
12-120	C	10YR5/3	Gravelly Sand

Many cobbles and stones in C Layer
Mottling @ 60"
Water @ 90"

CDCI-20

Depth	Horizon	Color	Texture
0-12	B	10YR5/6	Sand
12-102	C	10YR5/6	Gravelly Sand
102-138	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
Mottling @ 102"
No water observed

CDCI-21

Depth	Horizon	Color	Texture
0-24	B	10YR5/6	Sand
24-48	C	10YR5/6	Gravelly Sand
48-80	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
No mottling observed
No water observed
Ledge encountered at 80"

CDCI-22

Depth	Horizon	Color	Texture
0-16	B	10YR5/6	Sand
16-60	C	10YR5/6	Gravelly Sand
60-80	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
No mottling observed
No water observed
Ledge encountered at 80"

CDCI-23

Depth	Horizon	Color	Texture
0-16	B	10YR5/6	Sand
16-54	C	10YR5/6	Gravelly Sand

Many cobbles and stones in C Layer
No mottling observed
No water observed
Ledge encountered at 54"

CDCI-24

Depth	Horizon	Color	Texture
0-8	A	10YR3/2	Sand
8-16	B	10YR5/6	Sand
16-60	C	10YR5/6	Gravelly Sand
60-72	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
Mottling @ 32"
Water @ 72"
Ledge encountered at 72"

Address: Murphy's Farm, Dracut, MA
Date: 12/4/2024
S.E.: Thomas Schomburg & Steven Cummings
Witness: N/A

Note: Test pits CDCI-25 - CDCI-608 performed in areas that have been stripped of top and subsoil. Soil has begun to weather.

CDCI-25

Depth	Horizon	Color	Texture
0-30	B	10YR6/6	Loamy Sand
30-120	C	10YR6/4	Gravelly Sand

Mottling @ 72"
No water observed

CDCI-26

Depth	Horizon	Color	Texture
0-24	B	10YR6/6	Loamy Sand
24-72	C	10YR5/4	Gravelly Sand
72-120	C	10YR6/2	Sand

Mottling @ 72"
No water observed

TP-27

Depth	Horizon	Color	Texture
0-66	B	10YR6/6	Gravelly Sand
66-120	C	10YR6/1	Sand

Mottling @ 66"
No water observed

TP-470

Depth	Horizon	Color	Texture
0-10	A	10YR3/3	Sandy Loam
10-26	B	10YR5/6	Loamy Sand
26-78	C	10YR7/3	Fine Sand

No mottling observed
No water observed

TP-471

Depth	Horizon	Color	Texture
0-12	A	10YR3/3	Loamy Sand
12-24	B	10YR5/6	Loamy Sand
24-80	C	10YR7/3	Fine Sand

No mottling observed
No water observed

TP-472

Depth	Horizon	Color	Texture
0-12	A	10YR5/6	Loamy Sand
12-24	B	10YR5/3	Loamy Sand
24-72	C	10YR7/3	Fine Sand

No mottling observed
No water observed

TP-473

Depth	Horizon	Color	Texture
0-8	A	10YR3/3	Sandy Loam
8-18	B	10YR5/6	Loamy Sand
18-72	C	10YR7/3	Fine Sand

No mottling observed
No water observed

TP-474

Depth	Horizon	Color	Texture
0-8	A	10YR3/3	Sandy Loam
8-20	B	10YR5/6	Loamy Sand
20-72	C	10YR6/4	Medium Sand

No mottling observed
No water observed

TP-475

Depth	Horizon	Color	Texture
0-8	A	10YR3/2	Loamy Sand
8-18	B	10YR3/6	Loamy Sand
18-72	C	10YR6/4	Medium Sand

No mottling observed
No water observed

TP-476

Depth	Horizon	Color	Texture
0-16	A	10YR3/2	Loamy Sand
16-28	B	10YR3/4	Loamy Sand
28-72	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-477

Depth	Horizon	Color	Texture
0-6	A	10YR3/3	Sandy Loam
6-28	B	10YR5/4	Loamy Sand
28-72	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-478

Depth	Horizon	Color	Texture
0-6	A	10YR3/3	Sandy Loam
6-26	B	10YR5/4	Loamy Sand
26-72	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-479

Depth	Horizon	Color	Texture
0-10	A	10YR3/2	Loamy Sand
10-22	B	10YR5/4	Loamy Sand
22-80	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-480

Depth	Horizon	Color	Texture
0-6	A	10YR3/3	Sandy Loam
6-18	B	10YR5/6	Loamy Sand
18-72	C	10YR7/3	Sand

No mottling observed
No water observed

TP-481

Depth	Horizon	Color	Texture
0-8	A	10YR3/2	Loamy Sand
8-16	B	10YR5/4	Loamy Sand
16-80	C	10YR7/3	Medium Sand

Mottling @ 48"
No water observed

TP-480

Depth	Horizon	Color	Texture
0-6	A	10YR3/3	Sandy Loam
6-18	B	10YR5/6	Loamy Sand
18-72	C	10YR7/3	Sand

No mottling observed
No water observed

TP-482

Depth	Horizon	Color	Texture
0-8	A	10YR3/3	Sandy Loam
8-28	B	10YR5/6	Loamy Sand
28-78	C	10YR7/3	Medium Sand

Mottling @ 48"
No water observed

TP-483

Depth	Horizon	Color	Texture
0-16	A	10YR5/2	Loamy Sand
16-24	B	10YR5/4	Loamy Sand
24-74	C	10YR7/3	Fine Sand

Mottling @ 36"
No water observed

TP-484

Depth	Horizon	Color	Texture
0-10	A	10YR3/3	Sandy Loam
10-24	B	10YR6/6	Loamy Sand
24-78	C	10YR8/3	Medium Sand

Mottling @ 36"
No water observed

TP-485

Depth	Horizon	Color	Texture
0-10	A	10YR5/2	Loamy Sand
10-32	B	10YR5/4	Loamy Sand
32-84	C	10YR7/3	Fine Sand

Mottling @ 36"
No water observed

TP-486

Depth	Horizon	Color	Texture
0-6		10YR3/3	Sandy Loam
6-24		10YR5/8	Loamy Sand
24-72		10YR7/4	Medium Sand

No mottling observed
No water observed

TP-487

Depth	Horizon	Color	Texture
0-8	A	10YR3/2	Loamy Sand
8-24	B	10YR5/8	Loamy Sand
24-72	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-488

Depth	Horizon	Color	Texture
0-8	A	10YR3/2	Loamy Sand
8-20	B	10YR5/8	Loamy Sand
20-72	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-489

Depth	Horizon	Color	Texture
0-6		10YR3/3	Sandy Loam
6-22		10YR5/8	Loamy Sand
22-72		10YR7/4	Medium Sand

No mottling observed
No water observed

TP-490

Depth	Horizon	Color	Texture
0-6	A	10YR3/2	Loamy Sand
6-16	B	10YR5/8	Loamy Sand
16-48	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-491

Depth	Horizon	Color	Texture
0-8		10YR3/3	Sandy Loam
8-28		10YR5/8	Loamy Sand
28-74		10YR7/4	Medium Sand

Mottling @ 60"
No water observed

TP-492

Depth	Horizon	Color	Texture
0-12	A	10YR3/2	Loamy Sand
12-24	B	10YR5/8	Loamy Sand
24-72	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-493

Depth	Horizon	Color	Texture
0-8	A	10YR3/3	Sandy Loam
8-24	B	10YR5/8	Loamy Sand
24-78	C	10YR7/4	Medium Sand

No mottling observed
No water observed

TP-494

Depth	Horizon	Color	Texture
0-30	B	10YR5/6	Loamy Sand
30-84		10YR6/4	Gravelly Sand
84-120		10YR6/1	Sand

Mottling @ 84"
No water observed

TP-495

Depth	Horizon	Color	Texture
0-72	C	10YR6/6	Medium Sand
72-132	C2	10YR7/4	Fine Sand

Mottling @ 84"
No water observed

TP-496

Depth	Horizon	Color	Texture
0-12	B	10YR5/6	Loamy Sand
12-72	C	10YR6/4	Medium Sand
72-120	C2	10YR6/1	Fine Sand

Mottling @ 84"
No water observed

TP-497

Depth	Horizon	Color	Texture
0-60	Fill	-	-
60-120	C	10YR7/3	Loamy Sand

No mottling observed
No water observed

TP-498

Depth	Horizon	Color	Texture
0-60	Fill	-	-
60-120	C	10YR7/3	Fine Sand

No mottling observed
No water observed

TP-499

Depth	Horizon	Color	Texture
0-60	Fill	-	-
60-138	C	10YR7/3	Fine Sand

No mottling observed
No water observed

TP-600

Depth	Horizon	Color	Texture
0-90	Fill	-	-
90-126	C	10YR7/3	Sand

No mottling observed
No water observed

TP-601

Depth	Horizon	Color	Texture
0-96	Fill	-	-
96-120	C	10YR7/3	Sand

Mottling @ 96"
No water observed

TP-602

Depth	Horizon	Color	Texture
0-66	Fill	-	-
66-84	B	10YR5/4	Sand
84-120	C	10YR7/3	Sand

Mottling @ 86"
No water observed

TP-603

Depth	Horizon	Color	Texture
0-24	Fill	-	-
24-120	C	10YR5/3	Gravelly Sand

Mottling @ 60"
No water observed

TP-604

Depth	Horizon	Color	Texture
0-24	Fill	-	-
24-108	C	10YR7/3	Sand

Mottling @ 48"
No water observed

TP-605

Depth	Horizon	Color	Texture
0-72	Fill	-	-
72-108	C	10YR7/3	Sand

Mottling @ 60"
No water observed

TP-606

Depth	Horizon	Color	Texture
0-12	A	10YR3/2	Sandy Loam
12-32	B	7.5YR4/6	Loamy Sand
32-120	C	10YR6/3	Medium Sand

Mottling @ 48"
No water observed

TP-607

Depth	Horizon	Color	Texture
0-48	Fill	-	-
48-72	C	10YR5/3	Sand

Pit terminated early, no space to put material. See TP-609
No mottling observed
No water observed

TP-608

Depth	Horizon	Color	Texture
0-48	Fill	-	-
48-120	C	10YR7/4	Medium Sand

Mottling @ 84"
No water observed

TP-609

Depth	Horizon	Color	Texture
0-48	Fill	-	-
48-120	C	10YR 5/3	Medium Sand

No mottling observed
No water observed

DATE	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS

REVISIONS

APPLICANT:
THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:
MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED: APRIL 22, 2024
PROJECT #: 23-10524
PREPARED BY: TWS

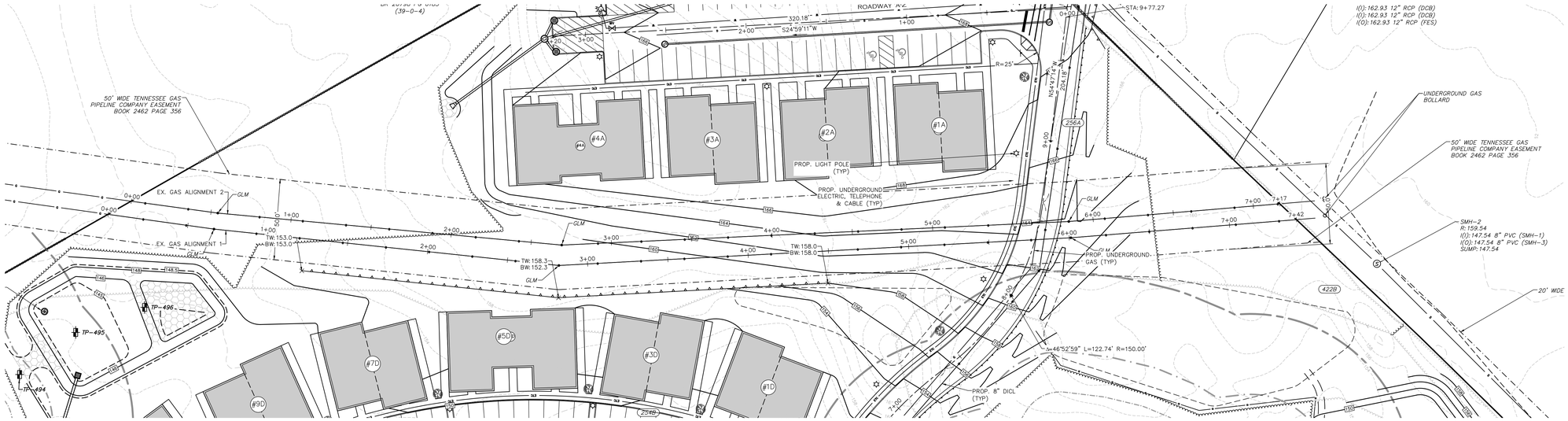
COMMONWEALTH OF MASSACHUSETTS
JAMES E. HANLEY
CIVIL
No. 47708
REGISTERED PROFESSIONAL ENGINEER

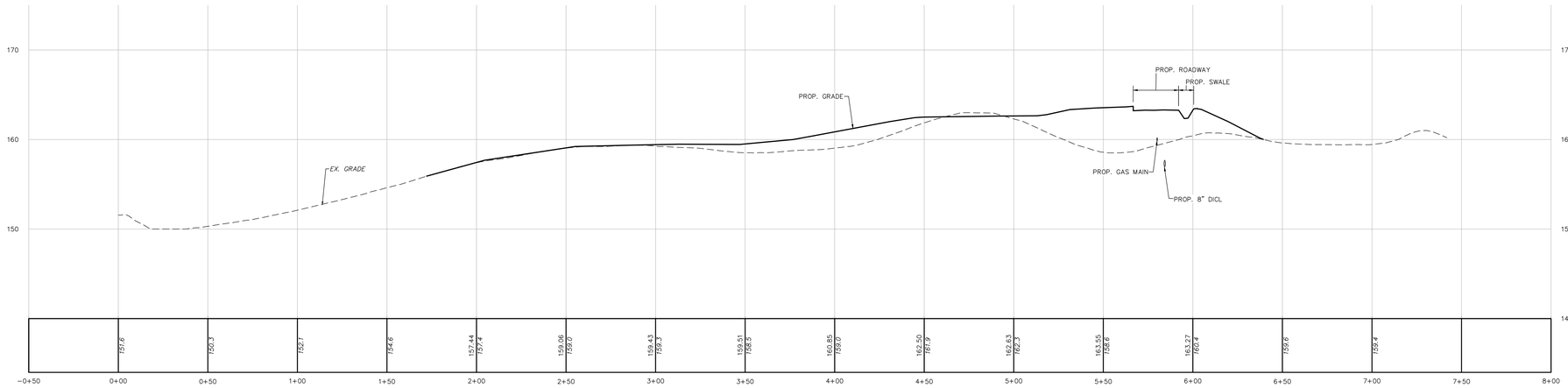
PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC
344 North Main Street | Andover - MA 01810
(978) 446-0920 | www.cvildc.com

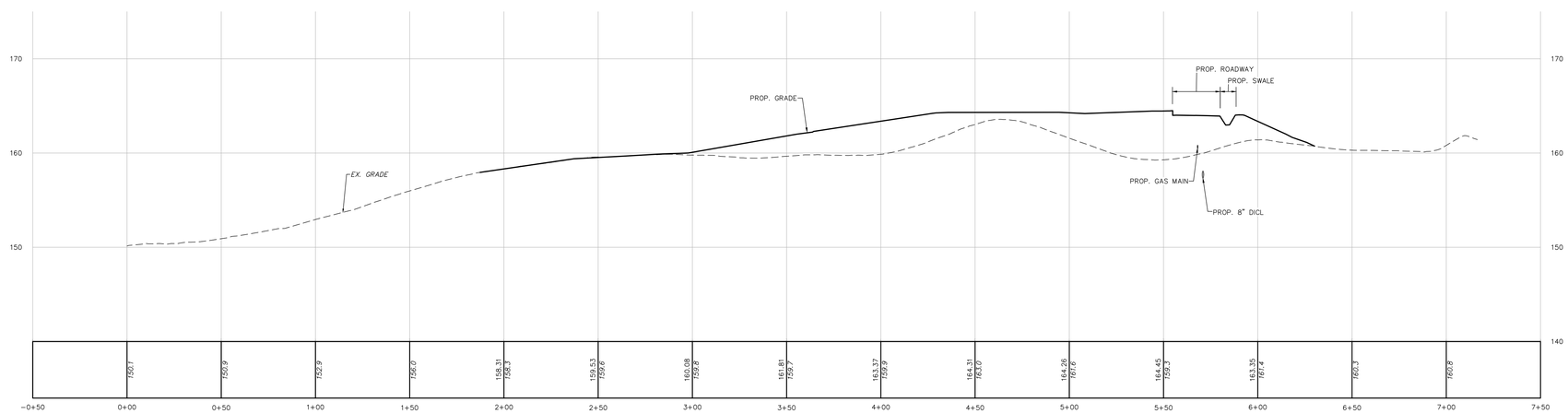
DRAWING TITLE:
CONSTRUCTION DETAILS

DRAWING #:
D-5





EX. GASLINE 1
HORIZONTAL SCALE: 1"=20
VERTICAL SCALE: 1"=4



EX. GASLINE 2
HORIZONTAL SCALE: 1"=20
VERTICAL SCALE: 1"=4

REVISIONS	DESCRIPTION
05/09/25	REV. PER PEER REVIEW COMMENTS
03/27/25	REV. PER PEER REVIEW COMMENTS
02/25/25	REV. PER PEER REVIEW COMMENTS
01/21/25	REV. PER INTERNAL REVIEW
12/30/24	REV. PER PEER REVIEW COMMENTS
10/04/24	REV. PER PEER REVIEW COMMENTS

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ANDOVER, MA 01810

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344 North Main Street | Andover - MA 01810
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DRAWING TITLE:

CONSTRUCTION DETAILS

DRAWING #:

D-6