LITTLE LEAF FARMS
SITE DEVELOPMENT PLAN
MAY 2025

DEVELOPER:
LITTLE LEAF FARMS, LLC
P.O. BOX 2069
DEVENS, MA 01434

PROPERTY OWNER:
CITY OF MANCHESTER
200 EAST FORT STREET
MANCHESTER, TN 37355

PARCEL ID:
TAX MAP: 084
PARCELS: 015.00

PROPERTY ADDRESS:
1778 ASBURY RD
MANCHESTER, TN 37355

DEED REFERENCES:
DEED BOOK 396, PAGE 675
REGISTER'S OFFICE OF COFFEE COUNTY, TENNESSEE.

ZONING:
I-1

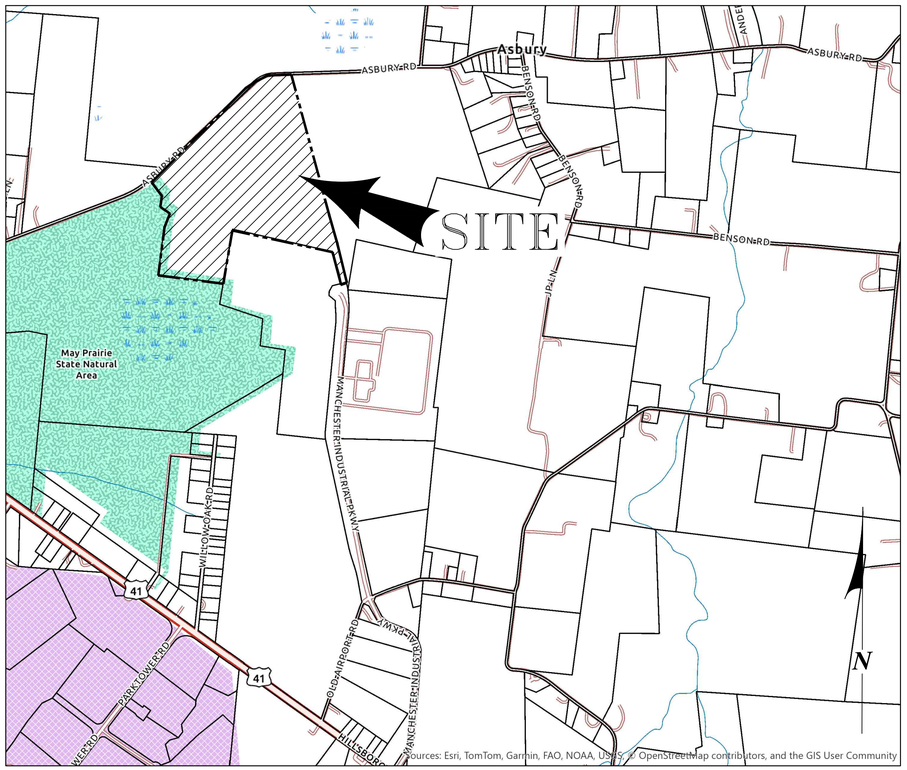
SITE AREA:
OVERALL PROPERTY AREA: 114.84 ACRES
R.O.W. RESERVATION: 3.18 ACRES

SETBACKS:

	I-1 (BUILDINGS)	MIP (BUILDINGS)	(PAVEMENT)
FRONT-	50'	75'	35'
SIDE-	20'	25'	15'
REAR-	25'	20'	15'

PROPOSED USE:
INDUSTRIAL AGRICULTURE

FLOOD NOTE:
THIS PROPERTY DOES NOT LIE IN A SPECIAL FLOOD HAZARD AREA AS PER FEMA FIRM PANEL NUMBER: 47031C0209C, EFFECTIVE AUGUST 4, 2008.



VICINITY MAP
NOT TO SCALE

PREPARED FOR:
little leaf FARMS

INDEX OF SHEETS

PREPARED BY:
St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

IN COORDINATION WITH:
designBLD
Design Construction Community
54 Tunkhannock Ave.
Exeter, PA 18643
570-609-2600
designBLD.com

APPROVED: _____
CITY OF MANCHESTER

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

COVER

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
6/6/2025

JOB 1107-01

SHEET C0.00

EXISTING WETLANDS TO BE REMOVED AREA=0.06 ACRES

EXISTING UNDERGROUND TELEPHONE AND FIBER OPTIC LINES

EXISTING OVERHEAD ELECTRIC TO BE RELOCATED

EXISTING WETLANDS TO REMAIN UNDISTURBED

ASBURY ROAD (R.O.W. VARIES)

STATE OF TENNESSEE
DB. 247, PG. 693

STATE OF TENNESSEE
DB. 247, PG. 698

DOT MANCHESTER 2022 LLC
DB. 425, PG. 5

TIN ROOF RENTALS, LLC
DB. 423, PG. 682

TIMOTHY TAYLOR EMERTON
DB. 281, PG. 902

CORY ROBERTSON, ETUX
PATRICIA SUZANNE
DB. 307, PG. 751

ANDREW APPLETON, ETUX
CHRISTINE
DB. 271, PG. 451

MICHAEL HOUSTON TOSH, ETUX
TRACY J
DB. 271, PG. 595

J & V JONES TRUST
DB. 441, PG. 201

GREAT LAKES CHEESE OF TN, INC
DB. 399, PG. 300

GREAT LAKES CHEESE OF TN, INC
DB. 358, PG. 401

MANCHESTER INDUSTRIAL PARKWAY (60' R.O.W.)

P.T.B.M. OPUS

SCALE: 1"=200'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

EXISTING CONDITIONS

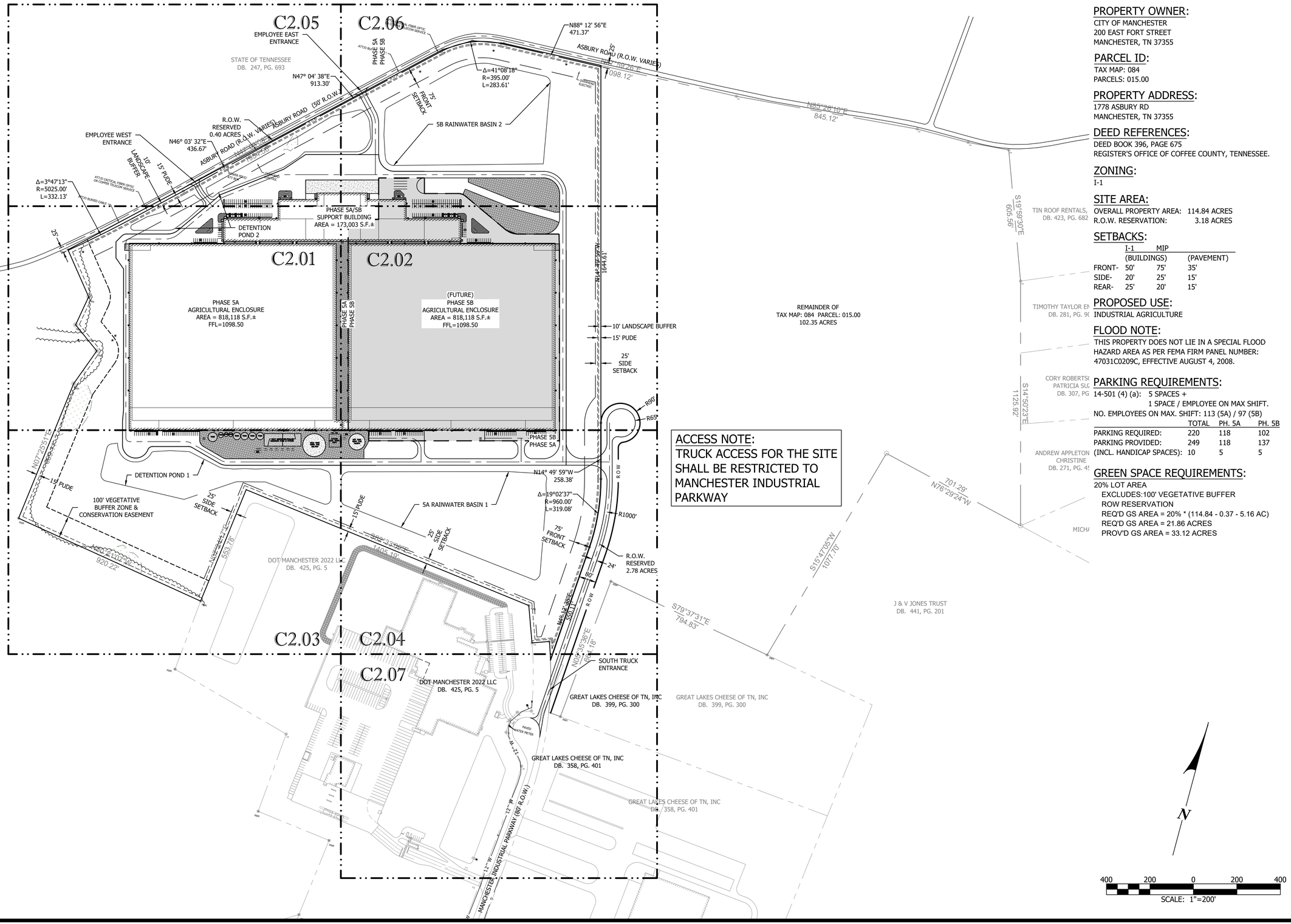
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
12/20/22
STATE OF TENNESSEE

JOB 1107-01

SHEET C1.00



ACCESS NOTE:
TRUCK ACCESS FOR THE SITE SHALL BE RESTRICTED TO MANCHESTER INDUSTRIAL PARKWAY

DEVELOPER:
LITTLE LEAF FARMS, LLC
P.O. BOX 2069
DEVENS, MA 01434

PROPERTY OWNER:
CITY OF MANCHESTER
200 EAST FORT STREET
MANCHESTER, TN 37355

PARCEL ID:
TAX MAP: 084
PARCELS: 015.00

PROPERTY ADDRESS:
1778 ASBURY RD
MANCHESTER, TN 37355

DEED REFERENCES:
DEED BOOK 396, PAGE 675
REGISTER'S OFFICE OF COFFEE COUNTY, TENNESSEE.

ZONING:
I-1

SITE AREA:

OVERALL PROPERTY AREA:	114.84 ACRES
R.O.W. RESERVATION:	3.18 ACRES

SETBACKS:

	I-1	MIP	
	(BUILDINGS)		(PAVEMENT)
FRONT-	50'	75'	35'
SIDE-	20'	25'	15'
REAR-	25'	20'	15'

PROPOSED USE:
INDUSTRIAL AGRICULTURE

FLOOD NOTE:
THIS PROPERTY DOES NOT LIE IN A SPECIAL FLOOD HAZARD AREA AS PER FEMA FIRM PANEL NUMBER: 47031C0209C, EFFECTIVE AUGUST 4, 2008.

PARKING REQUIREMENTS:
14-501 (4) (a): 5 SPACES +
1 SPACE / EMPLOYEE ON MAX SHIFT.
NO. EMPLOYEES ON MAX. SHIFT: 113 (5A) / 97 (5B)

	TOTAL	PH. 5A	PH. 5B
PARKING REQUIRED:	220	118	102
PARKING PROVIDED:	249	118	137
(INCL. HANDICAP SPACES):	10	5	5

GREEN SPACE REQUIREMENTS:
20% LOT AREA
EXCLUDES:100' VEGETATIVE BUFFER
ROW RESERVATION
REQ'D GS AREA = 20% * (114.84 - 0.37 - 5.16 AC)
REQ'D GS AREA = 21.86 ACRES
PROV'D GS AREA = 33.12 ACRES

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

OVERALL SITE LAYOUT PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN

JOB 1107–01
SHEET C2.00

MATCH LINE - SEE SHEET C2.05

R.O.W. RESERVED 0.40 ACRES

ROW

FRONT SETBACK

75'

15' PUDE

DETENTION POND 2

10' LANDSCAPE BUFFER

Δ=3°07'13"
L=32.13' R=5025.00'

25'

RBR

N36°34'15"W
236.62'

100'

VEGETATIVE BUFFER ZONE & CONSERVATION EASEMENT

RBR

N10°08'53"E
142.45'

RBR

N53°51'45"W
154.39'

RBR

N20°18'46"E
184.46'

RBR

WETLAND AREA

R25'

CAR ACCESS DRIVEWAY

5A

118 CAR PARKING SPACES (TYP.)

9'

5' CURB TAPER (TYP.)

H/C SIGNAGE (TYP.)

28.8'

24'

26'

192.91'

WASTE AREA

222.44'

PHASE 5A
PACKHOUS
SUPPORT BU
173,003

167.98'

462.43'

5'

104.33'

11.65'

24'

9'

20'

CONC. CURB

45'

HEAVY DUTY PAVE

R35'

60'

GREENHOUSE WASTE AREA

CONC. DOOR PAD (TYP.)

CONC. WHEELSTOP (TYP.)

GRAVEL AREA

GRAVEL AREA

PHASE 5A
AGRICULTURAL
ENCLOSURE AREA =
818,118 S.F.±
FFL=1098.50

857.28'

952.86'

25'

25'

30'

5.0'

MATCH LINE - SEE SHEET C2.02

MATCH LINE - SEE SHEET C2.03

CONC. WHEELSTOP (TYP.)

CONC. DOOR PAD (TYP.)

HEAVY DUTY

75'

35'

TANK

HEAT DESTROYER/CHILLER CONCRETE PADS & FUTURE

FUTURE ELEC. EQUIP.

GEN

N

100 50 0 50 100

SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE LAYOUT PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

JASON C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C2.01

PHASE 5A/5B
PACKHOUSE / SUPPORT BUILDING = 173,003 S.F.±

MATCH LINE - SEE SHEET C2.06

WASTE AREA

137 CAR PARKING SPACES (TYP.)

H/C SIGNAGE (TYP.)

PHASE 5A
PHASE 5B

GRAVEL AREA

HEAVY DUTY PAVE

CONC. WHEELSTOP (TYP.)

CONC. DOOR PAD (TYP.)

GREENHOUSE WASTE AREA
5' CURB TAPER

CONC. CURB

PHASE 5B
AGRICULTURAL ENCLOSURE AREA = 818,118 S.F.±
FFL=1098.50

FUTURE
PHASE 58 CONSTRUCTION

MATCH LINE - SEE SHEET C2.01

MATCH LINE - SEE SHEET C2.04

GEN.

REMAINDER OF
TAX MAP: 084 PARCEL: 015.00
102.35 ACRES

10' LANDSCAPE BUFFER
15' PUDE
25' SIDE SETBACK

N

100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE LAYOUT PLAN

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C2.02

MATCH LINE - SEE SHEET C2.03

CONC. WHEELSTOP (TYP.)

CONC. DOOR PAD (TYP.)

30'

11

19

20'

9'

7.5'

HEAVY DUTY PAVE

R25'

R35'

CONC. CURB

R60'

TANK

TANK

TANK

TANK

TANK

TANK

TANK

TANK

HEAT DESTROYER/CHILLER CONCRETE PADS & FUTURE

COLD TANK CONC. PAD 105.75'ø

131.13'

FUTURE ELEC. EQUIP. AREA

55'

25'

GRAVEL UTILITY AREA

T T

GEN.

T T T T T T T

30'

R35'

665'

HEAVY DUTY PAVE

30'

DETENTION POND 1

N07°26'51"E

669.11'

100' VEGETATIVE BUFFER ZONE & CONSERVATION EASEMENT

RBR

100' VEGETATIVE BUFFER ZONE

N80°21'07"W

920.22'

RBR

25' SETBACK

15' RUDE

N07°24'17"E

553.78'

DOT MANCHESTER 2022 LLC
DB. 425, PG. 5

MATCH LINE - SEE SHEET C2.07

N

100 50 0 50 100

SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SITE LAYOUT PLAN

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
8/2/2023

JOB 1107-01

SHEET C2.03

MATCH LINE - SEE SHEET C2.02

CONC. WHEELSTOP (TYP.)

5' CURB TAPER

PHASE 5B

PHASE 5A

FUTURE ELEC. EQUIP. AREA 55'

GEN.

HOT TANK CONC. PAD 75.05'ø

131.13'

R35'

30'

5' CURB TAPER (TYP.)

CONC. CURB

HEAVY DUTY PAVE

R65'

R25'

ROW

R75'

N14° 49' 59"W 258.38'

80'

24'

Δ=19°02'37"
R=960.00'
L=319.08'

R100'

5A RAINWATER BASIN 1

S82°33'09"E 1405.19'

25' SIDE SETBACK

15' PUDE

10' LANDSCAPE BUFFER

75' FRONT SETBACK

6' HIGH BLACK VINYL CHAIN-LINK FENCE W/GATES

R.O.W. RESERVED 2.78 ACRES

RBR

I.P.

N42°12'38"E 550.11'

SOUTH TRUCK ENTRANCE

N05°35'36"E 664.18'

N

SCALE: 1"=50'

MATCH LINE - SEE SHEET C2.03

MATCH LINE - SEE SHEET C2.07

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE LAYOUT PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
No. 120274
STATE OF TENNESSEE

JOB 1107-01

SHEET C2.04

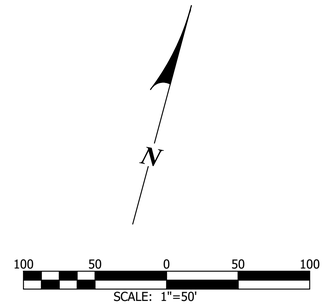
NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE LAYOUT PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK



STATE OF TENNESSEE
DB. 247, PG. 693

ASBURY ROAD (50' R.O.W.)

MATCH LINE - SEE SHEET C2.06

MATCH LINE - SEE SHEET C2.01

EMPLOYEE WEST ENTRANCE

R.O.W. RESERVED 0.40 ACRES

N46° 08' 32"E 436.62'

Δ=3°47'13"
L=332.13' R=2025.00'

10' LANDSCAPE BUFFER

15' PUDE

FRONT SETBACK 75'

25'

R25'

R50'

R75'

24'

DETENTION POND 2

CAR ACCESS DRIVEWAY

5' CURB TAPER (TYP.)

5A

118 CAR PARKING SPACES (TYP.)

9'

20'

24'

28.8'

H/C SIGNAGE (TYP.)

CONC. CURB

HEAVY DUTY PAVE

45'

128.4'

GEN

WASTE AREA

192.9'

222.44'

462.43'

167.98'

104.33'

11.65'

5'

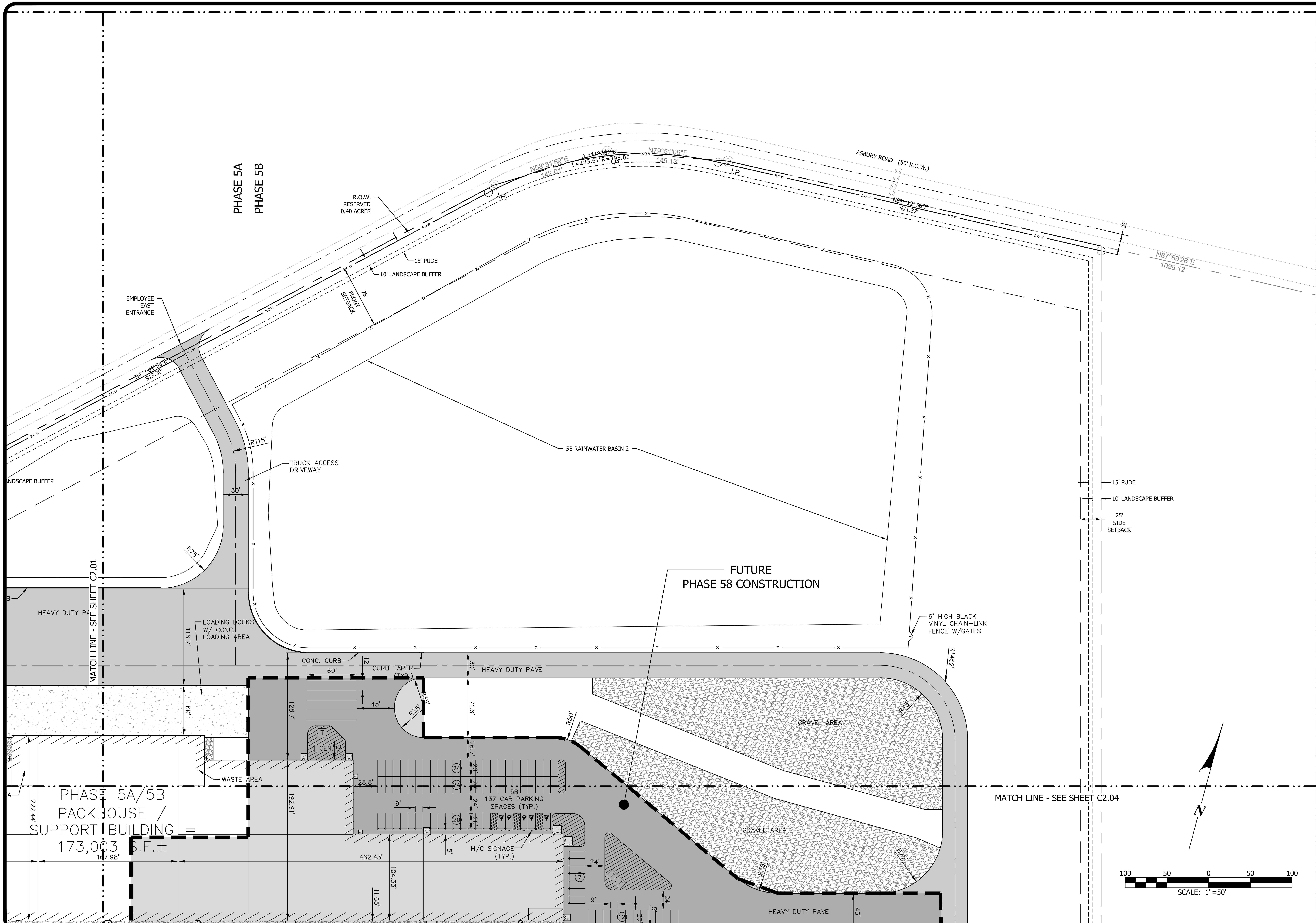
GRAVEL AREA

PHASE 5
PACKHOU
SUPPORT BU
173,003

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C2.05


PHASE 5A
PHASE 5B
ASBURY ROAD (50' R.O.W.)
R.O.W. RESERVED 0.40 ACRES
15' PUDE
10' LANDSCAPE BUFFER
75' FRONT SETBACK
EMPLOYEE EAST ENTRANCE
N58°31'59"E 142.01'
N79°51'09"E 145.13'
N88°12'56"E 471.37'
N87°59'26"E 1098.12'
N47°04'28"E 913.30'
L=283.61' R=395.00'
5B RAINWATER BASIN 2
TRUCK ACCESS DRIVEWAY
R115'
30'
R75'
15' PUDE
10' LANDSCAPE BUFFER
25' SIDE SETBACK
FUTURE
PHASE 58 CONSTRUCTION
6' HIGH BLACK VINYL CHAIN-LINK FENCE W/GATES
HEAVY DUTY PAVE
LOADING DOCKS W/ CONC. LOADING AREA
116.7'
60'
CONC. CURB
CURB TAPER (TYP.)
R1452'
R75'
R50'
R35'
45'
128.7'
71.6'
GRAVEL AREA
WASTE AREA
MATCH LINE - SEE SHEET C2.01
MATCH LINE - SEE SHEET C2.04
5B
137 CAR PARKING SPACES (TYP.)
H/C SIGNAGE (TYP.)
PHASE 5A/5B
PACKHOUSE /
SUPPORT BUILDING =
173,003 S.F.±
167.98'
462.43'
192.91'
222.44'
104.33'
11.65'
28.8'
26.7'
GRAVEL AREA
HEAVY DUTY PAVE
N
100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE LAYOUT PLAN

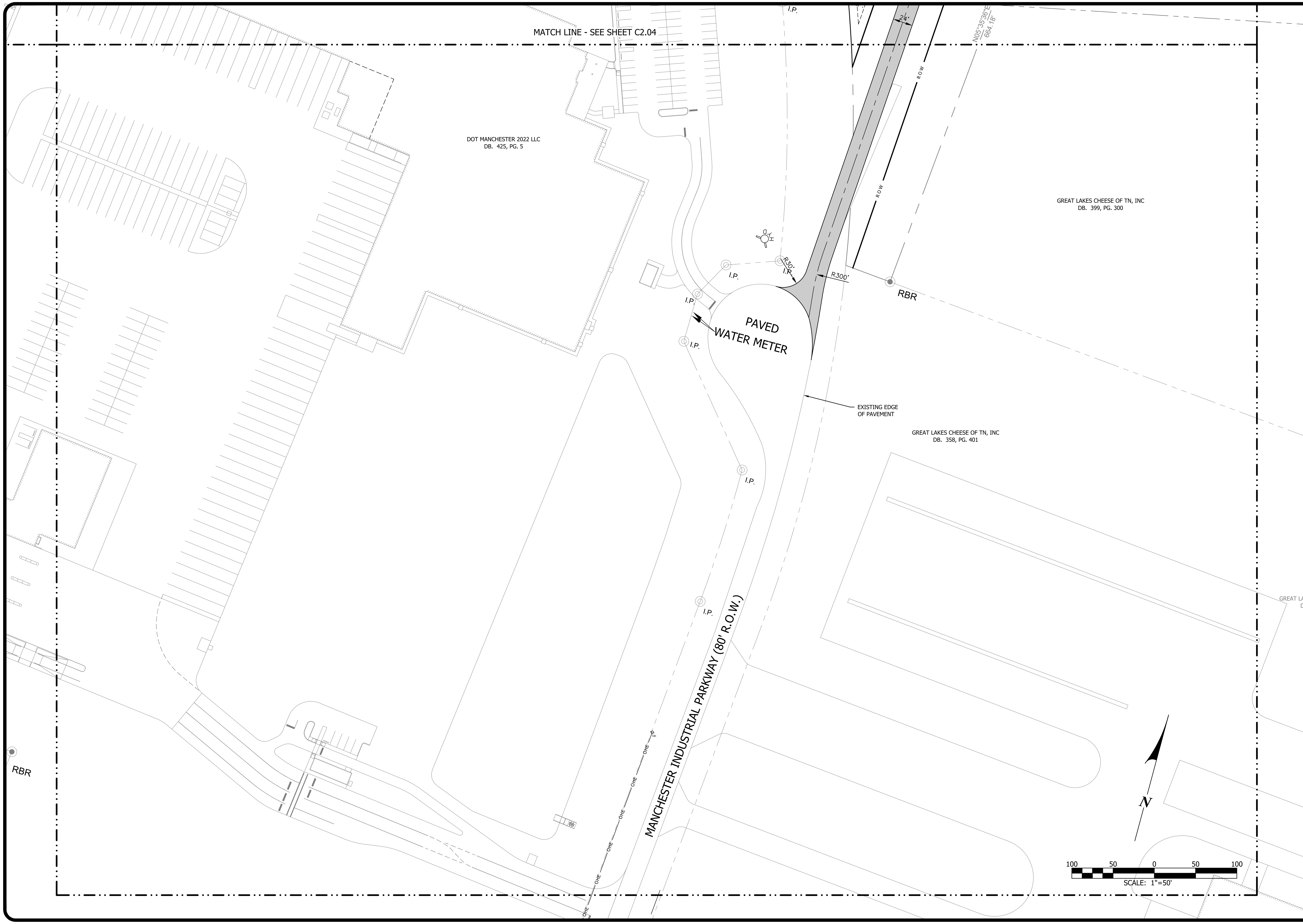
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
STATE OF TENNESSEE

JOB 1107-01

SHEET C2.06



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING

923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE LAYOUT PLAN

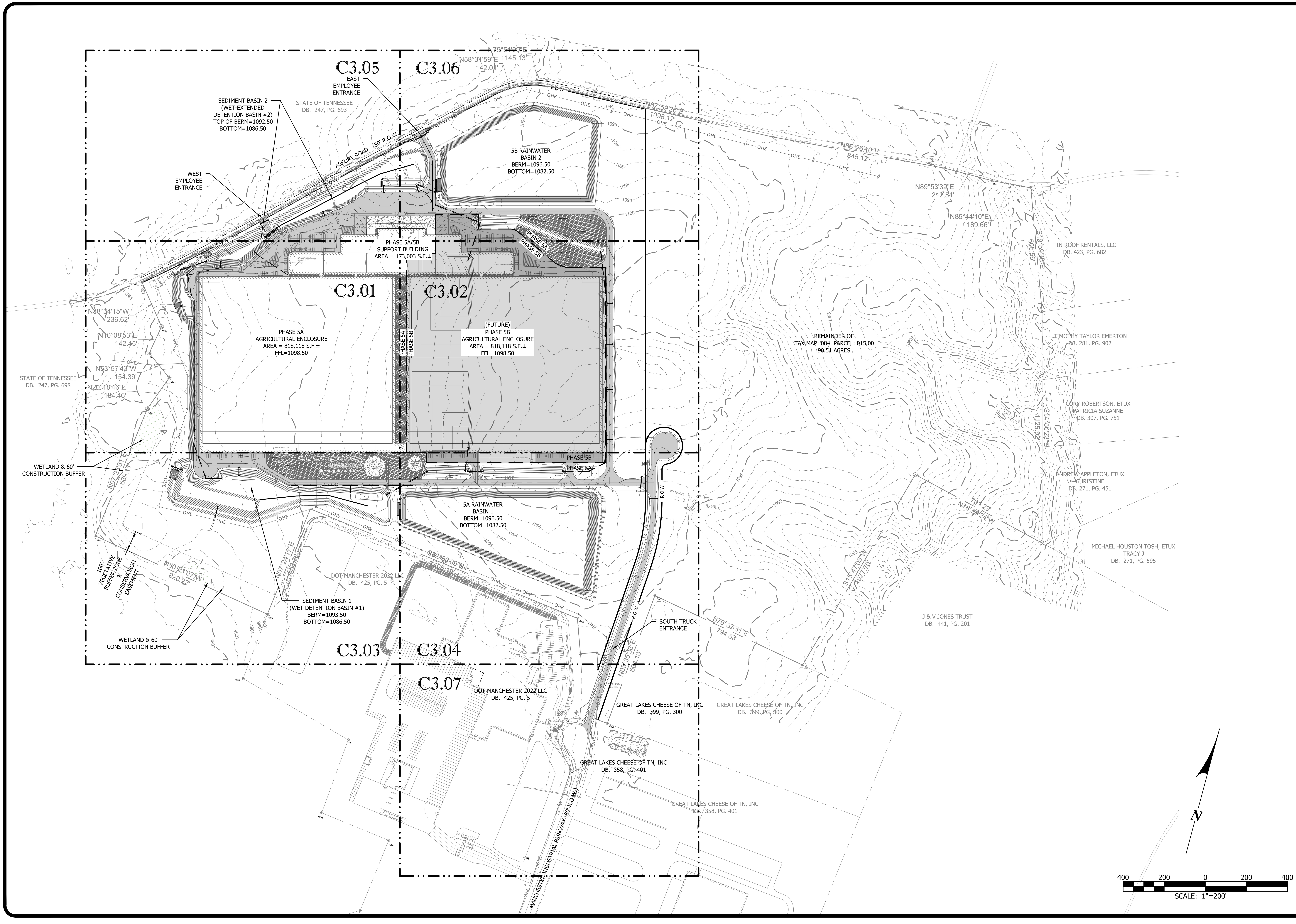
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
STATE OF TENNESSEE

JOB 1107-01

SHEET C2.07



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-6358 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

OVERALL GRADING PLAN

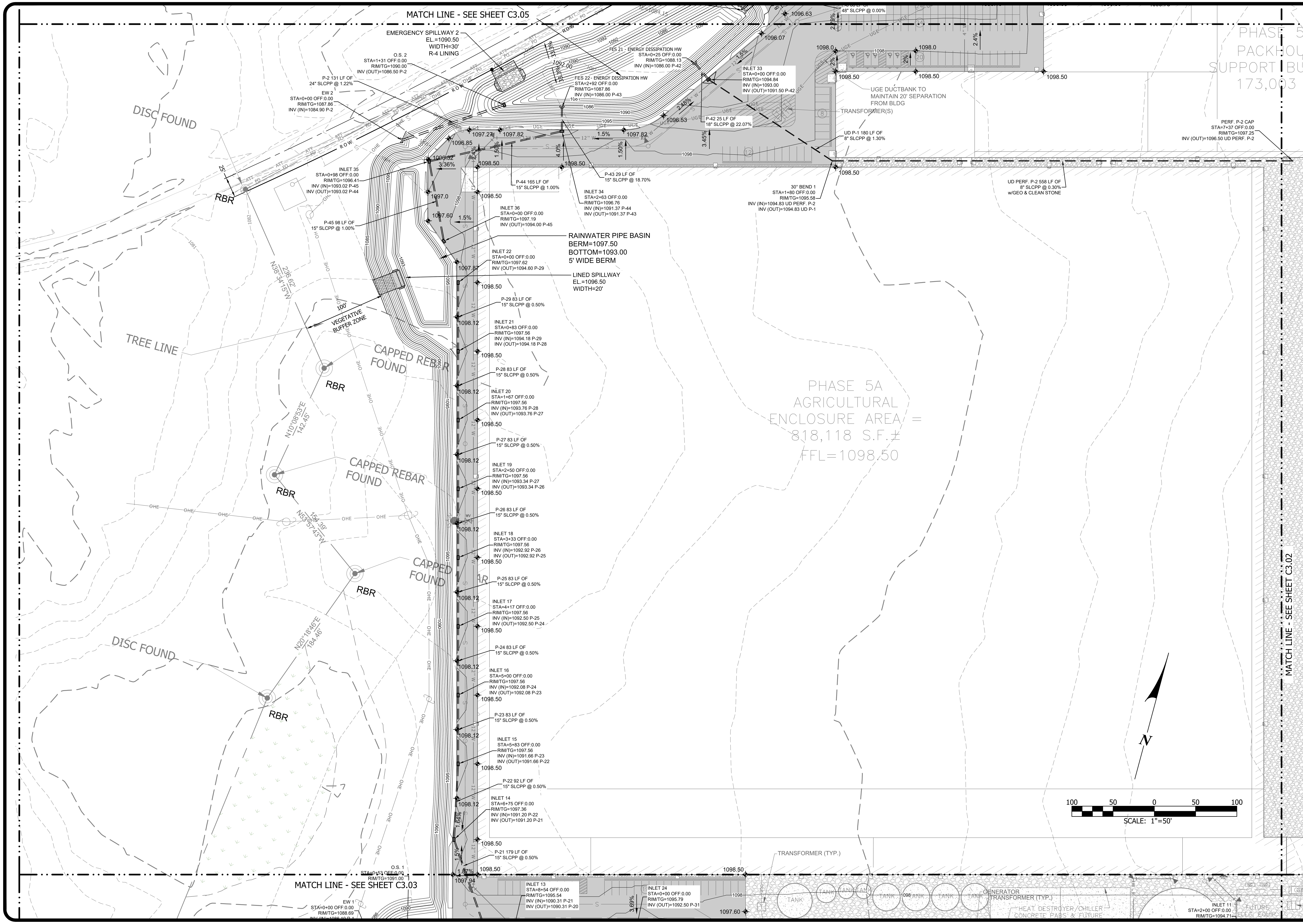
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN — STATE OF TENNESSEE

JOB 1107-01

SHEET C3.00



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

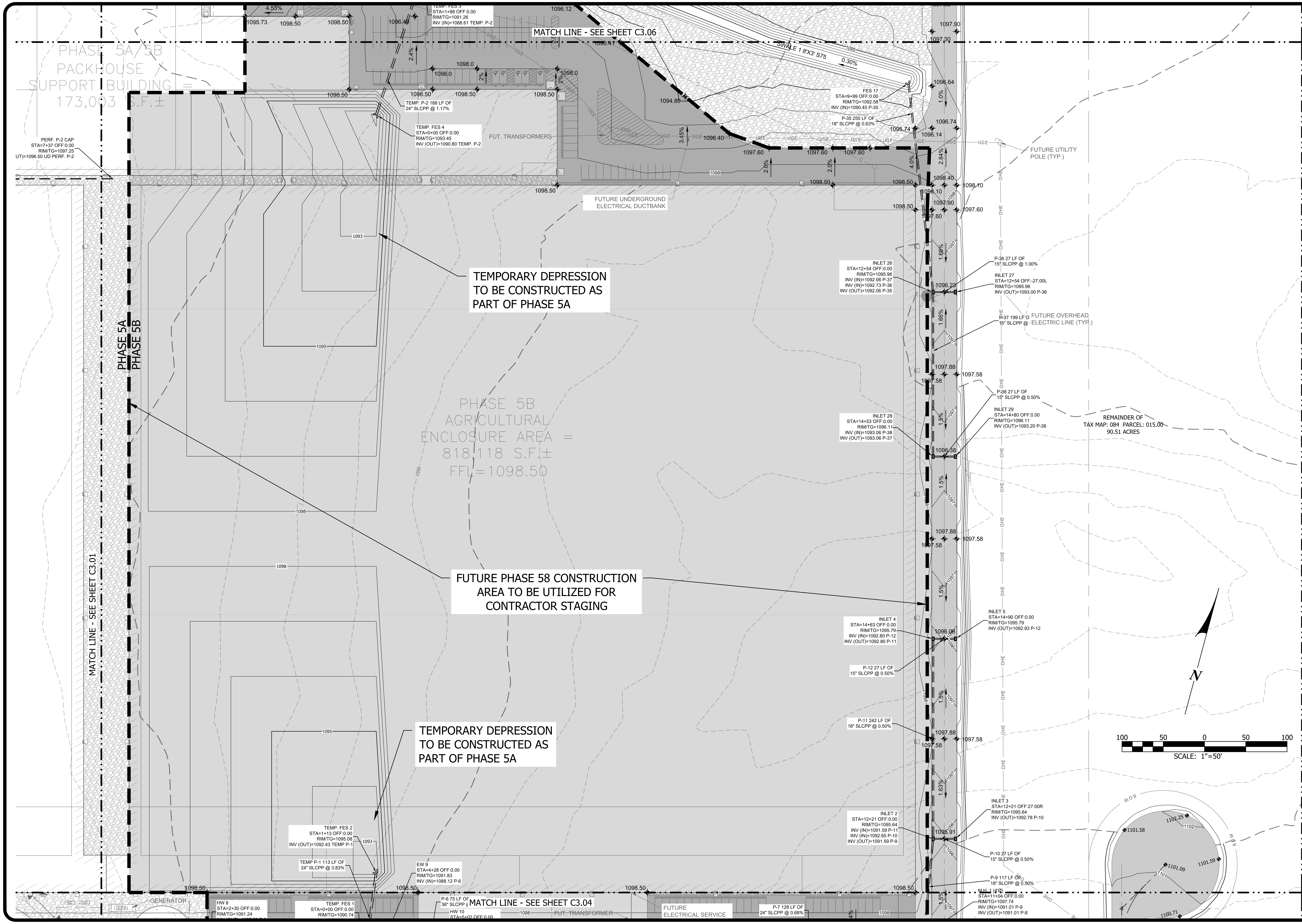
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN — REGISTERED ENGINEER — STATE OF TENNESSEE

JOB 1107-01

SHEET C3.01


MATCH LINE - SEE SHEET C3.06
PHASE 5A/5B PACKHOUSE / SUPPORT BUILDING = 173,003 S.F.±
SWALE 1 8'X3' S75
FES 17
STA=9+99 OFF:0.00
RIM/TG=1092.58
INV (IN)=1090.45 P-35
P-35 255 LF OF
18" SLCPP @ 0.63%
TEMP. FES 3
STA=1+88 OFF:0.00
RIM/TG=1091.26
INV (IN)=1088.61 TEMP. P-2
TEMP. P-2 188 LF OF
24" SLCPP @ 1.17%
TEMP. FES 4
STA=0+00 OFF:0.00
RIM/TG=1093.45
INV (OUT)=1090.80 TEMP. P-2
PERF. P-2 CAP
STA=7+37 OFF:0.00
RIM/TG=1097.25
UT)=1096.50 UD PERF. P-2
FUT. TRANSFORMERS
FUTURE UNDERGROUND
ELECTRICAL DUCTBANK
FUTURE UTILITY
POLE (TYP.)
TEMPORARY DEPRESSION
TO BE CONSTRUCTED AS
PART OF PHASE 5A
PHASE 5A
PHASE 5B
PHASE 5B
AGRICULTURAL
ENCLOSURE AREA =
818,118 S.F.±
FFL=1098.50
FUTURE OVERHEAD
ELECTRIC LINE (TYP.)
INLET 26
STA=12+54 OFF:0.00
RIM/TG=1095.96
INV (IN)=1092.06 P-37
INV (IN)=1092.73 P-36
INV (OUT)=1092.06 P-35
P-36 27 LF OF
15" SLCPP @ 1.00%
INLET 27
STA=12+54 OFF:-27.00L
RIM/TG=1095.96
INV (OUT)=1093.00 P-36
P-37 199 LF OF
15" SLCPP @
P-38 27 LF OF
15" SLCPP @ 0.50%
INLET 29
STA=14+80 OFF:0.00
RIM/TG=1096.11
INV (OUT)=1093.20 P-38
INLET 28
STA=14+53 OFF:0.00
RIM/TG=1096.11
INV (IN)=1093.06 P-38
INV (OUT)=1093.06 P-37
REMAINDER OF
TAX MAP: 084 PARCEL: 015.00
90.51 ACRES
FUTURE PHASE 58 CONSTRUCTION
AREA TO BE UTILIZED FOR
CONTRACTOR STAGING
MATCH LINE - SEE SHEET C3.01
INLET 4
STA=14+63 OFF:0.00
RIM/TG=1095.79
INV (IN)=1092.80 P-12
INV (OUT)=1092.80 P-11
INLET 5
STA=14+90 OFF:0.00
RIM/TG=1095.79
INV (OUT)=1092.93 P-12
P-12 27 LF OF
15" SLCPP @ 0.50%
P-11 242 LF OF
18" SLCPP @ 0.50%
N
100 50 0 50 100
SCALE: 1"=50'
TEMPORARY DEPRESSION
TO BE CONSTRUCTED AS
PART OF PHASE 5A
TEMP. FES 2
STA=1+13 OFF:0.00
RIM/TG=1095.08
INV (OUT)=1092.43 TEMP P-1
TEMP P-1 113 LF OF
24" SLCPP @ 3.83%
EW 9
STA=4+28 OFF:0.00
RIM/TG=1091.83
INV (IN)=1088.12 P-6
INLET 3
STA=12+21 OFF:27.00R
RIM/TG=1095.64
INV (OUT)=1092.78 P-10
INLET 2
STA=12+21 OFF:0.00
RIM/TG=1095.64
INV (IN)=1091.59 P-11
INV (IN)=1092.65 P-10
INV (OUT)=1091.59 P-9
P-10 27 LF OF
15" SLCPP @ 0.50%
P-9 117 LF OF
18" SLCPP @ 0.50%
M.H. 1
STA=11+04 OFF:0.00
RIM/TG=1097.74
INV (IN)=1091.01 P-9
INV (OUT)=1091.01 P-8
MATCH LINE - SEE SHEET C3.04
GENERATOR
HW 8
STA=2+30 OFF:0.00
RIM/TG=1091.24
TEMP. FES 1
STA=0+00 OFF:0.00
RIM/TG=1090.74
P-6 75 LF OF
36" SLCPP
HW 10
STA=5+02 OFF:0.00
FUT. TRANSFORMER
FUTURE
ELECTRICAL SERVICE
P-7 128 LF OF
24" SLCPP @ 0.68%

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

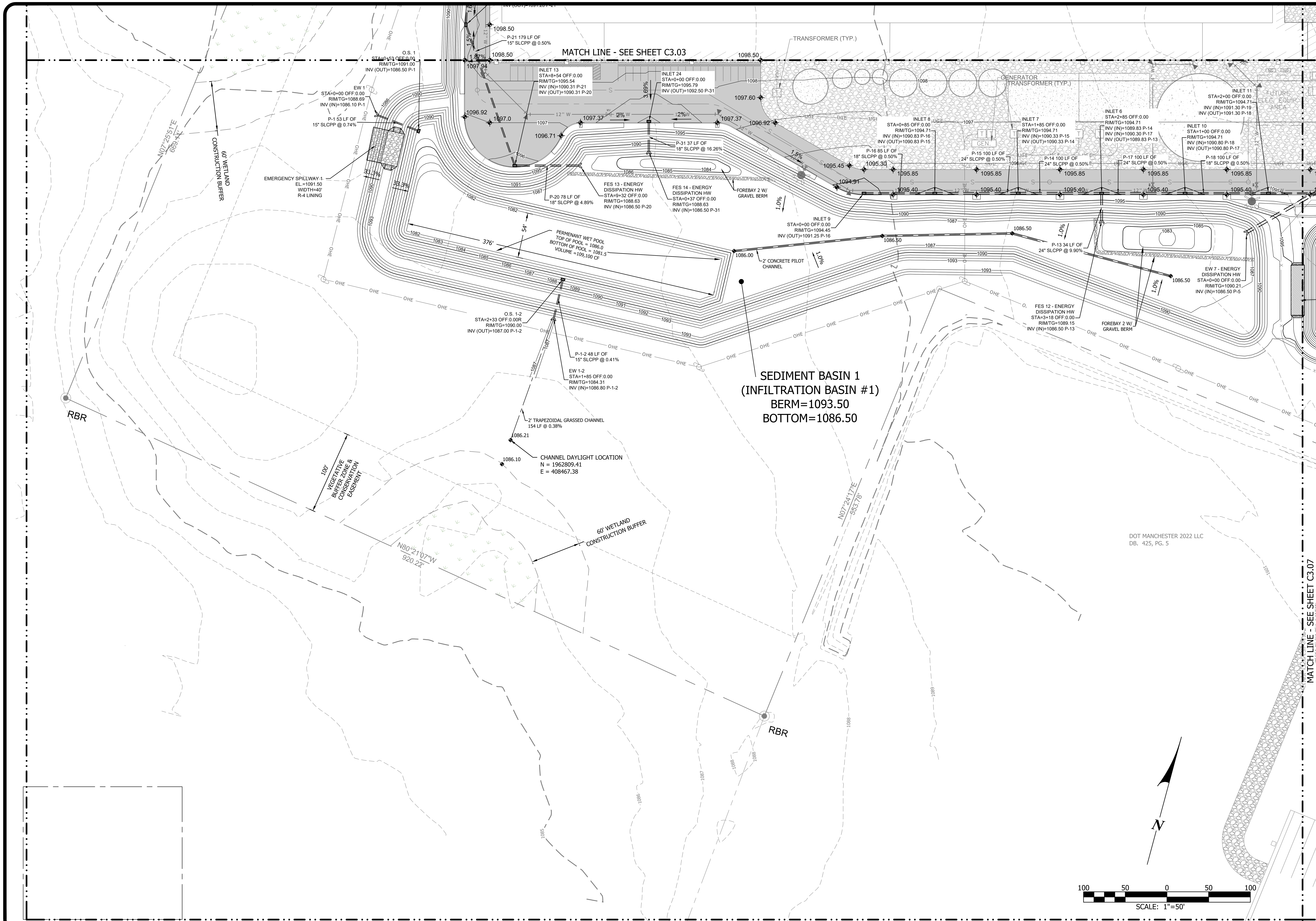
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C3.02



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C3.03

MATCH LINE - SEE SHEET C3.02

PHASE 5B

PHASE 5A

TEMP P-1 113 LF OF 24" SLCPP @ 3.83%

EW 9
STA=4+28 OFF:0.00
RIM/TG=1091.83
INV (IN)=1088.12 P-6

P-6 75 LF OF 36" SLCPP @ 0.58%

HW 10
STA=5+02 OFF:0.00
RIM/TG=1092.26
INV (OUT)=1088.55 P-6

HW 8
STA=2+30 OFF:0.00
RIM/TG=1091.24
INV (OUT)=1087.53 P-5

TEMP. FES 1
STA=0+00 OFF:0.00
RIM/TG=1090.74
INV (IN)=1088.09 TEMP P-1

P-7 128 LF OF 24" SLCPP @ 0.68%

P-9 117 LF OF 18" SLCPP @ 0.50%

MH 1 (48)
STA=11+04 OFF:0.00
RIM/TG=1097.74
INV (IN)=1091.01 P-9
INV (OUT)=1091.01 P-8

P-8 85 LF OF 18" SLCPP @ 1.50%

P-49 53 LF OF 18" RCP @ 0.56%

HW 11
RIM/TG=1100.46
INV (OUT)=1097.80 P-49

P-5 230 LF OF 36" SLCPP @ 0.45%

P-19 100 LF OF 15" SLCPP @ 0.50%

INLET 12
STA=3+00 OFF:0.00
RIM/TG=1094.71
INV (OUT)=1091.80 P-19

INLET 11
STA=2+00 OFF:0.00
RIM/TG=1094.71
INV (IN)=1091.30 P-19
INV (OUT)=1091.30 P-18

FES 11
STA=8+92 OFF:0.00
RIM/TG=1092.36
INV (IN)=1089.71 P-7

INLET 1
STA=10+19 OFF:0.00
RIM/TG=1094.00
INV (IN)=1090.58 P-8
INV (OUT)=1090.58 P-7

HW 19
RIM/TG=1100.46
INV (IN)=1097.50 P-49

P-48 39 LF OF 18" RCP @ 0.78%

HW 17
RIM/TG=1098.81
INV (IN)=1096.60 P-48

HW18
RIM/TG=1099.11
INV (OUT)=1096.90 P-48

SWALE 2 4'X3' S75

SWALE 2 3'X3' S75

RW EMERGENCY SPILLWAY 1
EL.=1094.50
WIDTH=60'
LINED

5A RAINWATER BASIN 1
BERM=1096.00
BOTTOM=1082.00

GENERATOR

TRANSMFORMER

FUTURE ELEC. EQUIP. AREA

FUT. TRANSFORMER

T.B.M. ORIG
REFERENCE POINT
40P NAIL SET
N=408857.55
E=1964975.35
ELEV.=1095.39

#4 REBAR FOUND

RBR

I.P.

S82°33'09"E 1405.19'

N05°35'36"E 664.18'

MATCH LINE - SEE SHEET C3.03

MATCH LINE - SEE SHEET C3.07

SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

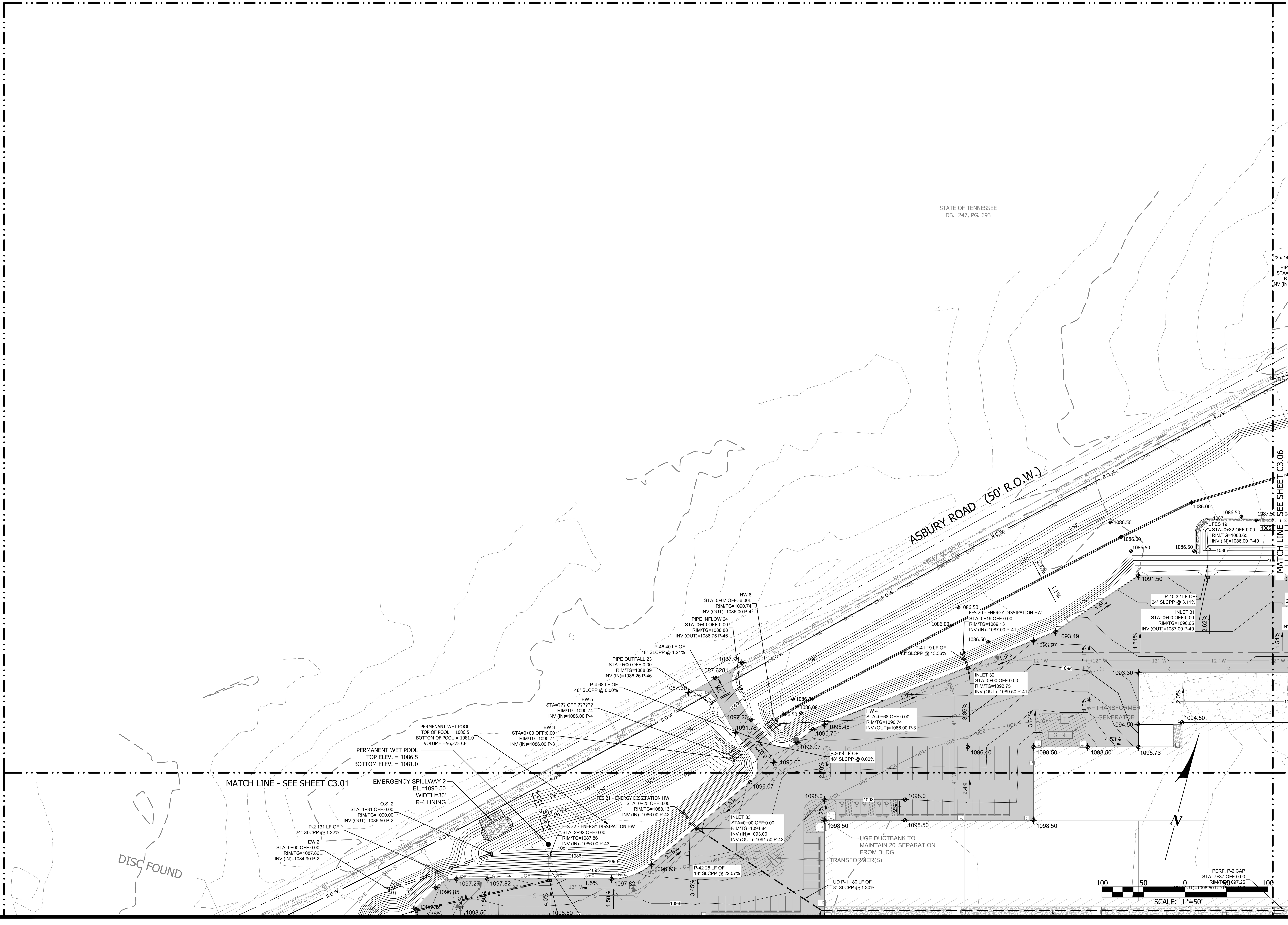
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C3.04


STATE OF TENNESSEE
DB. 247, PG. 693
ASBURY ROAD (50' R.O.W.)
MATCH LINE - SEE SHEET C3.06
MATCH LINE - SEE SHEET C3.01
PERMANENT WET POOL
TOP ELEV. = 1086.5
BOTTOM ELEV. = 1081.0
PERMANENT WET POOL
TOP OF POOL = 1086.5
BOTTOM OF POOL = 1081.0
VOLUME =56,275 CF
EMERGENCY SPILLWAY 2
EL.=1090.50
WIDTH=30'
R-4 LINING
O.S. 2
STA=1+31 OFF:0.00
RIM/TG=1090.00
INV (OUT)=1086.50 P-2
P-2 131 LF OF
24" SLCPP @ 1.22%
EW 2
STA=0+00 OFF:0.00
RIM/TG=1087.86
INV (IN)=1084.90 P-2
DISC FOUND
EW 3
STA=0+00 OFF:0.00
RIM/TG=1090.74
INV (IN)=1086.00 P-3
EW 5
STA=??? OFF:??????
RIM/TG=1090.74
INV (IN)=1086.00 P-4
P-4 68 LF OF
48" SLCPP @ 0.00%
PIPE OUTFALL 23
STA=0+00 OFF:0.00
RIM/TG=1088.39
INV (IN)=1086.26 P-46
P-46 40 LF OF
18" SLCPP @ 1.21%
PIPE INFLOW 24
STA=0+40 OFF:0.00
RIM/TG=1088.88
INV (OUT)=1086.75 P-46
HW 6
STA=0+67 OFF:-6.00L
RIM/TG=1090.74
INV (OUT)=1086.00 P-4
HW 4
STA=0+68 OFF:0.00
RIM/TG=1090.74
INV (OUT)=1086.00 P-3
P-3 68 LF OF
48" SLCPP @ 0.00%
FES 21 - ENERGY DISSIPATION HW
STA=0+25 OFF:0.00
RIM/TG=1088.13
INV (IN)=1086.00 P-42
FES 22 - ENERGY DISSIPATION HW
STA=2+92 OFF:0.00
RIM/TG=1087.86
INV (IN)=1086.00 P-43
INLET 33
STA=0+00 OFF:0.00
RIM/TG=1094.84
INV (IN)=1093.00
INV (OUT)=1091.50 P-42
P-42 25 LF OF
18" SLCPP @ 22.07%
UGE DUCTBANK TO
MAINTAIN 20' SEPARATION
FROM BLDG
TRANSFORMER(S)
UD P-1 180 LF OF
8" SLCPP @ 1.30%
FES 20 - ENERGY DISSIPATION HW
STA=0+19 OFF:0.00
RIM/TG=1089.13
INV (IN)=1087.00 P-41
P-41 19 LF OF
18" SLCPP @ 13.36%
INLET 32
STA=0+00 OFF:0.00
RIM/TG=1092.75
INV (OUT)=1089.50 P-41
TRANSFORMER
GENERATOR
GEN.
FES 19
STA=0+32 OFF:0.00
RIM/TG=1088.65
INV (IN)=1086.00 P-40
P-40 32 LF OF
24" SLCPP @ 3.11%
INLET 31
STA=0+00 OFF:0.00
RIM/TG=1090.65
INV (OUT)=1087.00 P-40
PERF. P-2 CAP
STA=7+37 OFF:0.00
N
100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C3.05

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-8357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
Expires 3/31/2024
STATE OF TENNESSEE

JOB 1107-01

SHEET C3.06

5B RAINWATER BASIN 2
BERM=1096.00
BOTTOM=1082.00

POND FOREBAY W/ GRAVEL BERM
VOLUME = 17,132 CF
BOTTOM ELEV = 1083.0
TOP OF BERM = 1087.5

RW EMERGENCY SPILLWAY 2
EL.=1094.50
WIDTH=60'
LINED W/CONCRETE APRON

R.O.W. RESERVED 0.40 ACRES

ASBURY ROAD (50' R.O.W.)

N72°55'09"E 145.13'

N68°31'50"E 142.01'

N87°59'26"E 1098.12'

PIPE INFLOW 26
STA=1+37 OFF:0.00
RIM/TG=1095.28
INV (OUT)=1093.68 P-47

P-47 50 LF OF 23 x 14 " HERCP @ 0.50%

PIPE OUTFALL 25
STA=0+87 OFF:0.00
RIM/TG=1095.03
INV (IN)=1093.43 P-47

CONC. PILOT CHANNEL

EW 15
STA=0+00 OFF:0.00
RIM/TG=1089.71
INV (IN)=1086.00 P-32

FES 18
STA=0+00 OFF:0.00
RIM/TG=1088.65
INV (IN)=1086.00 P-39

FES 19
STA=0+32 OFF:0.00
RIM/TG=1088.65
INV (IN)=1086.00 P-40

P-32 90 LF OF 36" SLCPP @ 0.83%

INLET 25
STA=0+90 OFF:0.00
RIM/TG=1091.48
INV (IN)=1086.75 P-33
INV (OUT)=1086.75 P-32

P-33 62 LF OF 36" SLCPP @ 1.16%

HW 16
STA=3+74 OFF:0.00
RIM/TG=1092.29
INV (OUT)=1088.58 P-34

P-39 32 LF OF 24" SLCPP @ 1.21%

INLET 30
STA=0+32 OFF:0.00
RIM/TG=1090.21
INV (OUT)=1086.39 P-39

INLET 31
OFF:0.00
1090.65
.00 P-40

M.H. 2 (5'Ø)
STA=1+52 OFF:0.00
RIM/TG=1092.43
INV (IN)=1087.47 P-34
INV (OUT)=1087.47 P-33

P-34 222 LF OF SLCPP @ 0.50%

SWALE 1 8'X3' S75 0.30%

TEMP. FES 3
STA=1+88 OFF:0.00
RIM/TG=1091.26
INV (IN)=1088.61 TEMP. P-2

TEMP. P-2 188 LF OF 24" SLCPP @ 1.17%

TEMP. FES 4
STA=0+00 OFF:0.00
RIM/TG=1093.45
INV (OUT)=1090.80 TEMP. P-2

PERF. P-2 CAP
STA=7+37 OFF:0.00
RIM/TG=1097.25
V (OUT)=1096.50 UD PERF. P-2

FES 17
STA=9+99 OFF:0.00
RIM/TG=1092.58
INV (IN)=1090.45 P-35

P-35 255 LF OF 18" SLCPP @ 0.63%

PHASE 5A
PHASE 5B

FUT. TRANS.
FUT. GENERATOR
FUT. TRANSFORMERS

MATCH LINE - SEE SHEET C3.01

MATCH LINE - SEE SHEET C3.04

N

100 50 0 50 100
SCALE: 1"=50'

MATCH LINE - SEE SHEET C3.04

DOT MANCHESTER 2022 LLC
DB. 425, PG. 5

GREAT LAKES CHEESE OF TN, INC
DB. 399, PG. 300

GREAT LAKES CHEESE OF TN, INC
DB. 358, PG. 401

#4 REBAR FOUND

BOX CULVERT

#4 REBAR FOUND

RBR

OVERHEAD ELECTRIC

I.P.

ROW

EXISTING EDGE OF PAVEMENT

MANCHESTER INDUSTRIAL PKWY (80' R.O.W.)

N05°35'35"E 664.18'

N

100 50 0 50 100
SCALE: 1"=50'

STATION

PVIS: 0+05.51
PVIE: 1098.85
PRC: 0+27.18
PT: 0+79.82
PVI STA: 5+87.46
PVI ELEV: 1095.43
K: 69.09
LVC: 100.00
LOW PT. STA: 5+54.41
LOW PT ELEV: 1095.53
BVCS: 5+37.46
BVCE: 1095.55
EVCS: 6+37.46
EVCE: 1096.03
PC: 8+55.13
PVIS: 9+66.17
PVIE: 1099.84
PVI STA: 11+75.00
PVI ELEV: 1098.93
K: 80.07
LVC: 100.00
LOW PT. STA: 11+65.03
LOW PT ELEV: 1099.08
BVCS: 11+25.00
BVCE: 1099.18
PT: 11+87.50
EVCS: 12+25.00
EVCE: 1099.31
PC: 13+51.45
PT: 14+29.99
EP: 14+63.53
PVIS: 14+63.63
PVIE: 1101.09

-0.25% -0.50% 1.20% 0.75%

1096.9	1095.0 / 1096.74	1094.6 / 1096.62	1094.6 / 1096.50	1094.5 / 1096.38	1094.3 / 1096.25	1094.0 / 1096.13	1094.1 / 1096.01	1094.2 / 1095.89	1094.3 / 1095.76	1094.4 / 1095.64	1094.1 / 1095.53	1094.1 / 1095.68	1094.6 / 1096.18	1094.9 / 1096.78	1095.4 / 1097.38	1095.8 / 1097.98	1096.2 / 1098.58	1096.9 / 1099.18	1098.1 / 1099.78	1098.1 / 1099.81	1097.7 / 1099.56	1097.2 / 1099.31	1096.9 / 1099.10	1096.6 / 1099.16	1096.8 / 1099.50	1097.6 / 1099.87	1098.3 / 1100.24	1098.8 / 1100.62	1099.5 / 1100.99

PROFILE: Manchester Industrial Parkway
SCALE: HORIZ; 1"=50'
VERT; 1"=10'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

GRADING PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C3.07

C4.05 C4.06 C4.01 C4.02 C4.03 C4.04 C4.07

EXISTING OH ELECTRIC LINE ALONG ASBURY ROAD TO BE RELOCATED

SSMH #1 W/ 20-FT 8" PVC STUBOUT (INSTALLED BY CITY OF MANCHESTER)

WATER MAIN

FIRE HYDRANT

SANITARY SEWER PUMP STATION (BY OTHERS)

64 LF OF 8" SS @ 0.4% (INSTALLED BY LLF)

TRANSFORMER

8" SANITARY SEWER

MONITORING MANHOLE W/ FLOW METER

FIRE HYDRANT

UNDERGROUND ELECTRIC DUCTBANK

SANITARY SEWER MANHOLE (TYP.)

NATURAL GAS METER LOCATION

WATER MAIN

FIRE HYDRANT

SANITARY SEWER MANHOLE (TYP.)

FIRE HYDRANT

10" WATER METER & DDCV ASSEMBLY

NATURAL GAS LINE

OVERHEAD ELECTRIC

FUTURE ELECTRIC SUBSTATION TRACT AREA=6.55± ACRES

CONNECT TO EXISTING 12" WATER MAIN

CONNECT TO EXISTING GAS MAIN

ASBURY ROAD (R.O.W. VARIES)

STATE OF TENNESSEE DB. 247, PG. 693

STATE OF TENNESSEE DB. 247, PG. 698

DOT MANCHESTER 2022 LLC DB. 425, PG. 5

GREAT LAKES CHEESE OF TN, INC DB. 399, PG. 300

GREAT LAKES CHEESE OF TN, INC DB. 358, PG. 401

J & V JONES TRUST DB. 441, PG. 201

TIN ROOF RENTALS, LLC DB. 423, PG. 682

TIMOTHY TAYLOR EMERTON DB. 281, PG. 902

CORY ROBERTSON, ETUX PATRICIA SUZANNE DB. 307, PG. 751

ANDREW APPLETON, ETUX CHRISTINE DB. 271, PG. 451

MICHAEL HOUSTON TOSH, ETUX TRACY J DB. 271, PG. 595

PHASE 5A

PHASE 5B

5B RAINWATER BASIN 2 BERM=1096.00 BOTTOM=1082.00

5A RAINWATER BASIN 1 BERM=1096.50 BOTTOM=1082.00

PHASE 5A AGRICULTURAL ENCLOSURE AREA = 818,118 S.F.± FFL=1098.50

PHASE 5B AGRICULTURAL ENCLOSURE AREA = 818118 S.F.± FFL=1098.50

HYDRANT FLOW TEST DATA:

TEST DATE/TIME: 3/4/2025, 10:30 AM
TEST BY: MANCHESTER WATER & SEWER DEPARTMENT
INDUSTRIAL PARK PUMP STATUS: PUMP RUNNING
HYDRANT FLOWED: DEAD END AT CUL-DE-SAC
STATIC - 54 PSI
RESIDUAL - 44 PSI
PITOT - 45 PSI
NOZZEL COEFFICIENT - 0.9
UNADJUSTED FLOW RATE - 1130 GPM
ADJUSTED FLOW RATE @ 20 PSI - 2180 GPM

N

400 200 0 200 400
SCALE: 1"=200'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

OVERALL SITE UTILITY PLAN

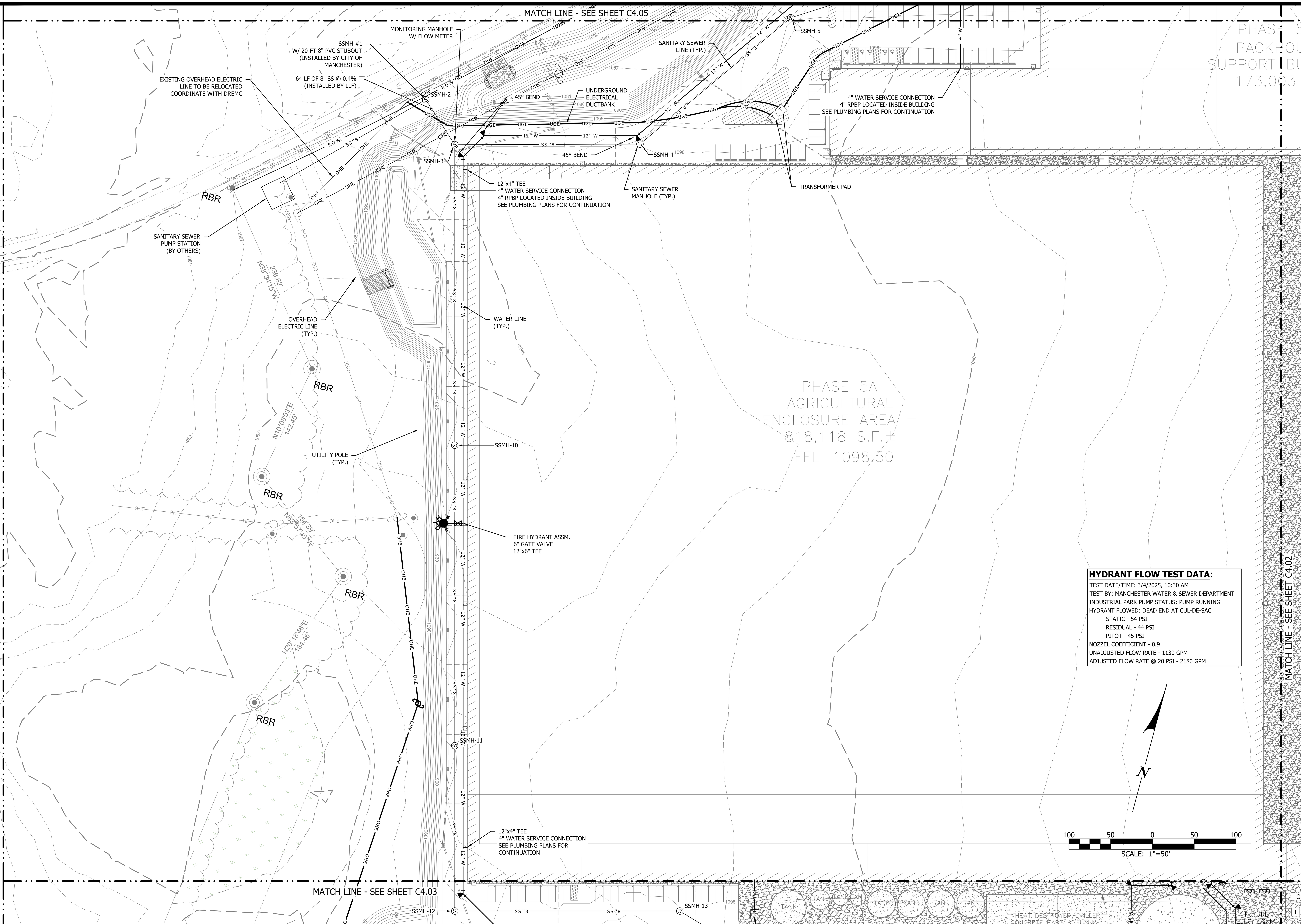
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN REGISTERED ENGINEER 120274 STATE OF TENNESSEE

JOB 1107-01

SHEET C4.00



MATCH LINE - SEE SHEET C4.05
MONITORING MANHOLE W/ FLOW METER
SSMH #1 W/ 20-FT 8" PVC STUBOUT (INSTALLED BY CITY OF MANCHESTER)
64 LF OF 8" SS @ 0.4% (INSTALLED BY LLF)
EXISTING OVERHEAD ELECTRIC LINE TO BE RELOCATED COORDINATE WITH DREMC
SSMH-2
45° BEND
UNDERGROUND ELECTRICAL DUCTBANK
SANITARY SEWER LINE (TYP.)
SSMH-5
4" WATER SERVICE CONNECTION 4" RPBP LOCATED INSIDE BUILDING SEE PLUMBING PLANS FOR CONTINUATION
PHASE 5A PACKHOUSE SUPPORT BU 173,003
SSMH-3
45° BEND
SSMH-4
12"x4" TEE 4" WATER SERVICE CONNECTION 4" RPBP LOCATED INSIDE BUILDING SEE PLUMBING PLANS FOR CONTINUATION
SANITARY SEWER MANHOLE (TYP.)
TRANSFORMER PAD
RBR
SANITARY SEWER PUMP STATION (BY OTHERS)
N38°34'15"W 236.62'
OVERHEAD ELECTRIC LINE (TYP.)
WATER LINE (TYP.)
RBR
N10°08'53"E 142.45'
PHASE 5A AGRICULTURAL ENCLOSURE AREA = 818,118 S.F.± FFL=1098.50
UTILITY POLE (TYP.)
SSMH-10
RBR
N53°51'43"W 154.39'
FIRE HYDRANT ASSM. 6" GATE VALVE 12"x6" TEE
RBR
N20°18'48"E 184.46'
RBR
SSMH-11
MATCH LINE - SEE SHEET C4.02
12"x4" TEE 4" WATER SERVICE CONNECTION SEE PLUMBING PLANS FOR CONTINUATION
N
100 50 0 50 100
SCALE: 1"=50'
MATCH LINE - SEE SHEET C4.03
SSMH-12
SSMH-13
TANK
HEAT DESTROYER/CHILLER CONCRETE PADS & FUTURE
FUTURE ELEC. EQUIP. AREA

HYDRANT FLOW TEST DATA:

TEST DATE/TIME: 3/4/2025, 10:30 AM
TEST BY: MANCHESTER WATER & SEWER DEPARTMENT
INDUSTRIAL PARK PUMP STATUS: PUMP RUNNING
HYDRANT FLOWED: DEAD END AT CUL-DE-SAC
STATIC - 54 PSI
RESIDUAL - 44 PSI
PITOT - 45 PSI
NOZZEL COEFFICIENT - 0.9
UNADJUSTED FLOW RATE - 1130 GPM
ADJUSTED FLOW RATE @ 20 PSI - 2180 GPM

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE UTILITY PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN — STATE OF TENNESSEE — REGISTERED ENGINEER

JOB 1107-01

SHEET C4.01

MATCH LINE - SEE SHEET C4.06

PHASE 5A/5B
PACKHOUSE / SUPPORT BUILDING = 173,063 S.F.±

FUTURE 4" WATER SERVICE CONNECTION
4" RPBP LOCATED INSIDE BUILDING
SEE PLUMBING PLANS FOR CONTINUATION

FUTURE 4" WATER SERVICE CONNECTION
4" RPBP LOCATED INSIDE BUILDING
SEE PLUMBING PLANS FOR CONTINUATION

SSMH-8

FUTURE
SANITARY SEWER
MANHOLE (TYP.)

FUTURE
SANITARY SEWER
LINE (TYP.)

FUTURE
TRANSFORMER PAD

FUTURE
UNDERGROUND
ELECTRICAL
DUCTBANK

SSMH-9

UTILITY POLE
(TYP.)

FUTURE
SEWER SERVICE CONNECTION
SEE PLUMBING PLANS FOR
CONTINUATION

FUTURE
FIRE HYDRANT ASSM.
SERVED VIA INTERNAL
WATER LINE

FUTURE
OVERHEAD
ELECTRIC LINE
(TYP.)

PHASE 5B
AGRICULTURAL
ENCLOSURE AREA =
818,118 S.F.±
FFE=1098.50

FUTURE
PHASE 5B CONSTRUCTION

MATCH LINE - SEE SHEET C4.01

SEE SHEET C4.03 FOR
SERVICE CONNECTION
DETAILS

FUTURE
ELECTRICAL SERVICE CONNECTION
SEE ELECTRICAL PLANS FOR
CONTINUATION

FUTURE
4" WATER SERVICE CONNECTION
SEE PLUMBING PLANS FOR
CONTINUATION

FUTURE
4" WATER SERVICE CONNECTION
SEE PLUMBING PLANS FOR
CONTINUATION

MATCH LINE - SEE SHEET C4.04

HYDRANT FLOW TEST DATA:

TEST DATE/TIME: 3/4/2025, 10:30 AM
TEST BY: MANCHESTER WATER & SEWER DEPARTMENT
INDUSTRIAL PARK PUMP STATUS: PUMP RUNNING
HYDRANT FLOWED: DEAD END AT CUL-DE-SAC
- STATIC - 54 PSI
- RESIDUAL - 44 PSI
- PITOT - 45 PSI

NOZZEL COEFFICIENT - 0.9
UNADJUSTED FLOW RATE - 1130 GPM
ADJUSTED FLOW RATE @ 20 PSI - 2180 GPM

N

100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE UTILITY PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
3/4/2025

JOB 1107-01

SHEET C4.02

MATCH LINE - SEE SHEET C4.01

12"x4" TEE
4" WATER SERVICE CONNECTION
4" RPBP LOCATED INSIDE BUILDING
SEE PLUMBING PLANS FOR CONTINUATION

SANITARY SEWER LINE (TYP.)

TRANSFORMER PAD

UNDERGROUND ELECTRICAL DUCTBANK

TRANSFORMER PAD (8)

SEWER SERVICE CONNECTION
SEE PLUMBING PLANS FOR CONTINUATION

4" WATER SERVICE CONNECTION
4" RPBP INSIDE BUILDING
SEE PLUMBING PLANS FOR CONTINUATION

8" FIRE LINE CONNECTION
SEE FIRE PROTECTION PLANS.
8" DCVA INSIDE BLDG, WALL MOUNTED FDC, & PIV

NATURAL GAS METER PADS

45° BEND

SSMH-13

SSMH-15

SSMH-16

SSMH-14

22.5° BEND

12" GATE VALVE
W/ TRAFFIC-RATED BOX

SANITARY SEWER MANHOLE (TYP.)

22.5° BEND

PRIVATE WATER LINE (TYP.)

OVERHEAD ELECTRIC LINE (TYP.)

FUTURE BLDG. EQUIP. AREA

GEN.

FIRE HYDRANT ASSEMBLY
12"x6" TEE

12"x4" TEE
4" GATE VALVE
W/ TRAFFIC-RATED BOX

12"x8" TEE
8" GATE VALVE
W/ TRAFFIC-RATED BOX

PROPERTY CORNER NOT FOUND

UTILITY POLE (TYP.)

RBR

CAPPED REBAR FOUND

1086.21

1086.10

1086.00

1086.50

DOT MANCHESTER 2022 LLC
DB. 425, PG. 5

MATCH LINE - SEE SHEET C4.07

HYDRANT FLOW TEST DATA:

TEST DATE/TIME: 3/4/2025, 10:30 AM
TEST BY: MANCHESTER WATER & SEWER DEPARTMENT
INDUSTRIAL PARK PUMP STATUS: PUMP RUNNING
HYDRANT FLOWED: DEAD END AT CUL-DE-SAC
STATIC - 54 PSI
RESIDUAL - 44 PSI
PITOT - 45 PSI
NOZZEL COEFFICIENT - 0.9
UNADJUSTED FLOW RATE - 1130 GPM
ADJUSTED FLOW RATE @ 20 PSI - 2180 GPM

N

100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE UTILITY PLAN

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
3/13/2025
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.03

SEE SHEET C4.02 FOR SERVICE CONNECTION DETAILS

FUTURE PHASE 58 CONSTRUCTION

FUTURE 4" WATER LINE CONNECTION 4" RPBP LOCATED INSIDE BUILDING

MATCH LINE - SEE SHEET C4.02

FUTURE 4" WATER LINE CONNECTION 4" RPBP LOCATED INSIDE BUILDING

FUTURE TRANSFORMER PAD

FUTURE ELEC. EQUIP. AREA

HOT TANK CONC. PAD 75.05'

TANK PAD

COORDINATE STUBOUT LOCATION OF 4" WATER LINE WITH OWNER

COORDINATE STUBOUT LOCATION OF 4" WATER LINE WITH OWNER

SSMH-16

UNDERGROUND ELECTRICAL DUCTBANK APPROXIMATE LOCATION OF PHASE 5B STUB OUT

12"x4" TEE 4" GATE VALVE

PRIVATE WATER LINE (TYP.)

12"x4" TEE 4" GATE VALVE

FIRE HYDRANT ASSEMBLY 12"x6" TEE 6" GATE VALVE W/ BOX 12" GATE VALVE W/ BOX BLIND FLANGE W/ BLOCKING

45° BEND

12"x10" TEE 10" GATE VALVE W/ TRAFFIC-RATED BOX

12"x10" REDUCER

10" DCVA IN ABOVEGROUND HOT BOX

12" COMPOUND WATER METER IN CONCRETE VAULT

20'x40' PUBLIC UTILITY EASEMENT

NATURAL GAS LINE LOCATION TO BE COORDINATED WITH LOCAL NG UTILITY

12" PUBLIC WATER MAIN

OVERHEAD ELECTRIC LINE ALIGNMENT TO BE DETERMINED AS PART OF PHASE 5B CONSTRUCTION (TYP.)

5A RAINWATER BASIN 1
BERM=1096.00
BOTTOM=1082.00

OVERHEAD ELECTRIC LINE (TYP.) COORDINATE ALIGNMENT AND POLE LOCATION WITH DREMC

#4 REBAR FOUND

RBR

#4 REBAR FOUND

#4 REBAR FOUND

I.P.

I.P.

MATCH LINE - SEE SHEET C4.03

MATCH LINE - SEE SHEET C4.07

HYDRANT FLOW TEST DATA:

TEST DATE/TIME: 3/4/2025, 10:30 AM
TEST BY: MANCHESTER WATER & SEWER DEPARTMENT
INDUSTRIAL PARK PUMP STATUS: PUMP RUNNING
HYDRANT FLOWED: DEAD END AT CUL-DE-SAC
STATIC - 54 PSI
RESIDUAL - 44 PSI
PITOT - 45 PSI
NOZZEL COEFFICIENT - 0.9
UNADJUSTED FLOW RATE - 1130 GPM
ADJUSTED FLOW RATE @ 20 PSI - 2180 GPM

UTILITY NOTES:

1. COMBINED DOMESTIC AND FIRE WATER LINE TO BE C900 (DR21) PVC MEETING AWWA C900 SPECIFICATIONS.
2. PUBLIC WATER MAIN TO BE C900 (DR 21) PVC MEETING AWWA C900 SPECIFICATIONS
3. COMPOUND WATER METER TO BE RECORDALL FIRE SERIES ASSEMBLY, COLD WATER METER WITH DISK BYPASS FSAA MODEL 8 INCH.

N

100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

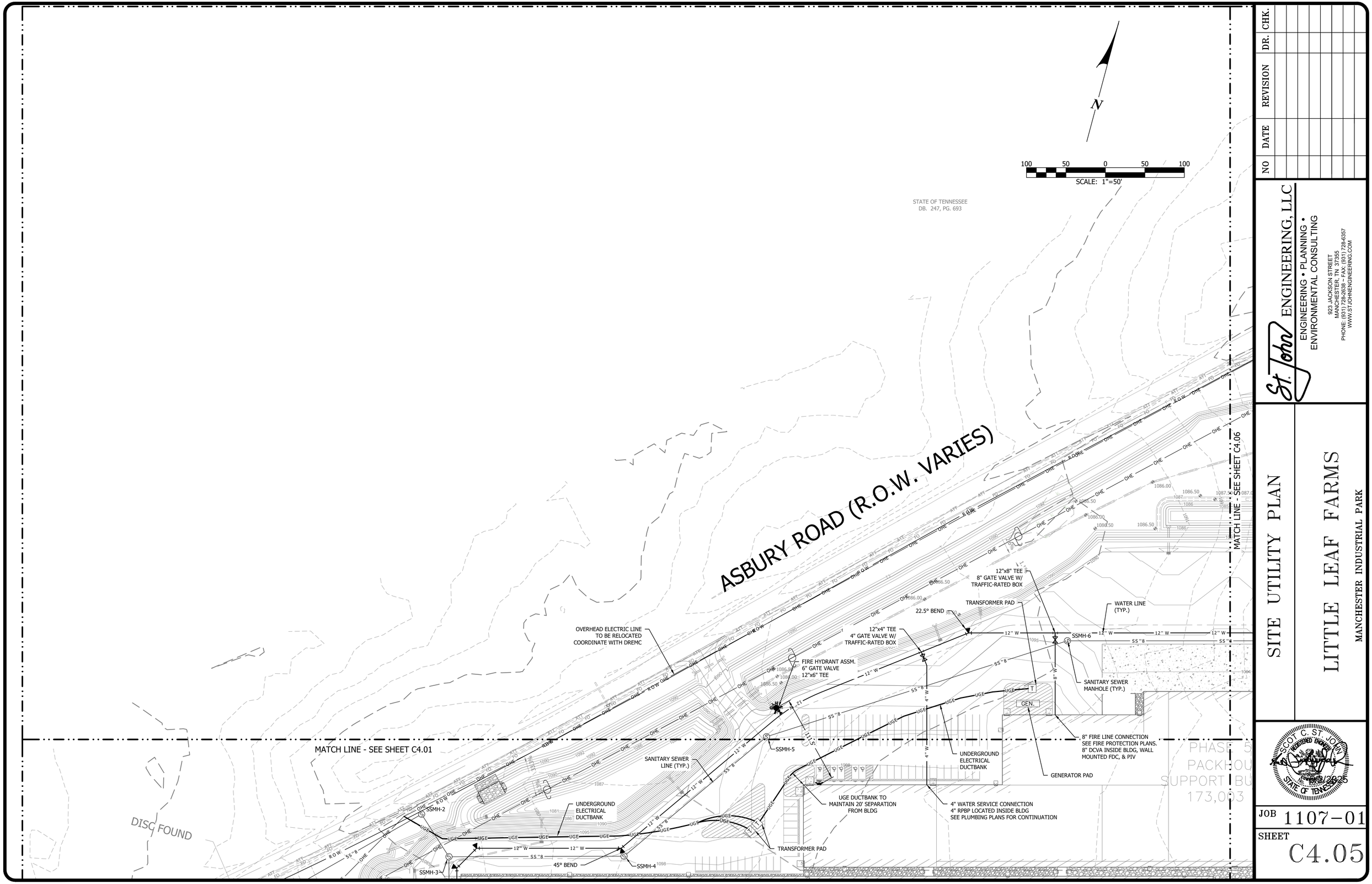
SITE UTILITY PLAN

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.04



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE UTILITY PLAN

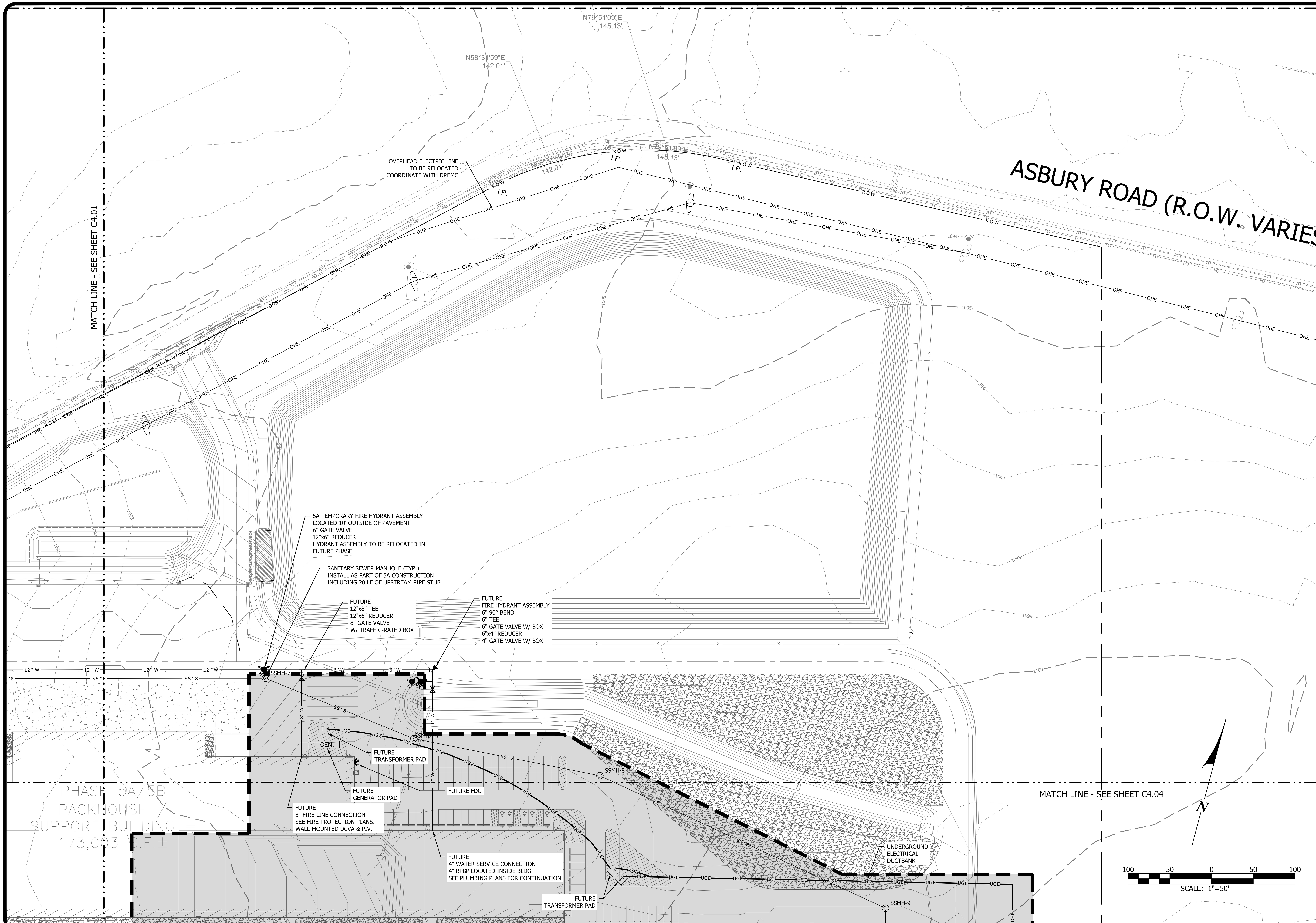
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
12/13/22
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.05



ASBURY ROAD (R.O.W. VARIES)
N79°51'09"E
145.13'
N58°31'59"E
142.01'
OVERHEAD ELECTRIC LINE
TO BE RELOCATED
COORDINATE WITH DREMC
MATCH LINE - SEE SHEET C4.01
MATCH LINE - SEE SHEET C4.04
5A TEMPORARY FIRE HYDRANT ASSEMBLY
LOCATED 10' OUTSIDE OF PAVEMENT
6" GATE VALVE
12"x6" REDUCER
HYDRANT ASSEMBLY TO BE RELOCATED IN
FUTURE PHASE
SANITARY SEWER MANHOLE (TYP.)
INSTALL AS PART OF 5A CONSTRUCTION
INCLUDING 20 LF OF UPSTREAM PIPE STUB
FUTURE
12"x8" TEE
12"x6" REDUCER
8" GATE VALVE
W/ TRAFFIC-RATED BOX
FUTURE
FIRE HYDRANT ASSEMBLY
6" 90° BEND
6" TEE
6" GATE VALVE W/ BOX
6"x4" REDUCER
4" GATE VALVE W/ BOX
SSMH-7
SSMH-8
SSMH-9
FUTURE
TRANSFORMER PAD
GEN.
FUTURE
GENERATOR PAD
FUTURE FDC
FUTURE
8" FIRE LINE CONNECTION
SEE FIRE PROTECTION PLANS.
WALL-MOUNTED DCVA & PIV.
FUTURE
4" WATER SERVICE CONNECTION
4" RPBP LOCATED INSIDE BLDG
SEE PLUMBING PLANS FOR CONTINUATION
FUTURE
TRANSFORMER PAD
UNDERGROUND
ELECTRICAL
DUCTBANK
PHASE 5A/5B
PACKHOUSE /
SUPPORT BUILDING =
173,003 S.F.±
N
100 50 0 50 100
SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING

923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE UTILITY PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.06

MATCH LINE - SEE SHEET C4.04

NATURAL GAS LINE

OVERHEAD ELECTRIC LINE

REMOVE EXISTING PLUG AND CONNECT TO EXISTING 12" WATER MAIN

EXISTING 12" GATE VALVE

EXISTING FIRE HYDRANT

#4 REBAR FOUND

RBR

EXISTING UTILITY POLE

EXISTING 12" WATER MAIN

CONNECT TO EXISTING GAS MAIN

I.P.

12" W

GAS

OHE

N

100 50 0 50 100

SCALE: 1"=50'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

SITE UTILITY PLAN

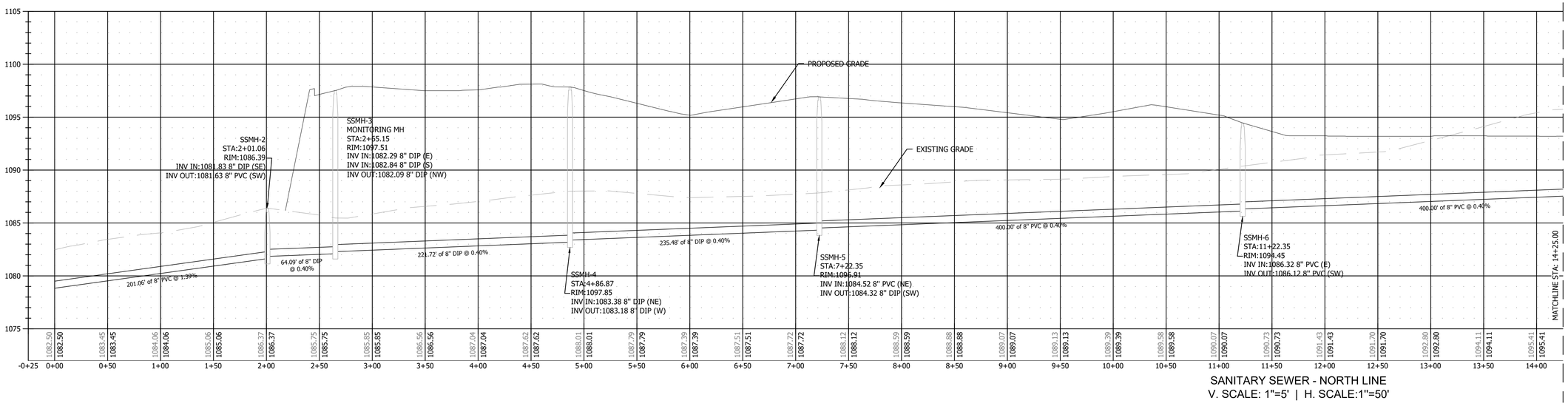
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

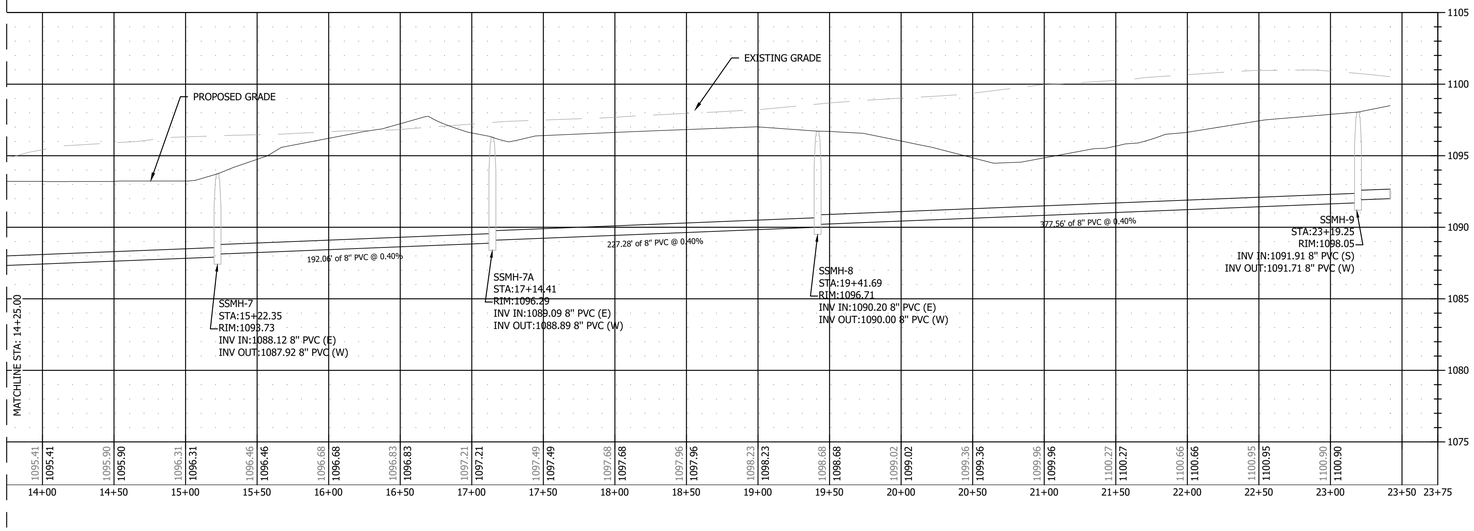
SCOTT C. ST JOHN
REGISTERED ENGINEER
Expires 6/30/2024
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.07



SANITARY SEWER - NORTH LINE
V. SCALE: 1"=5' | H. SCALE:1"=50'



SANITARY SEWER PROFILE

LITTLE LEAF FARMS

MANCHESTER INDURSTRIAL PARK

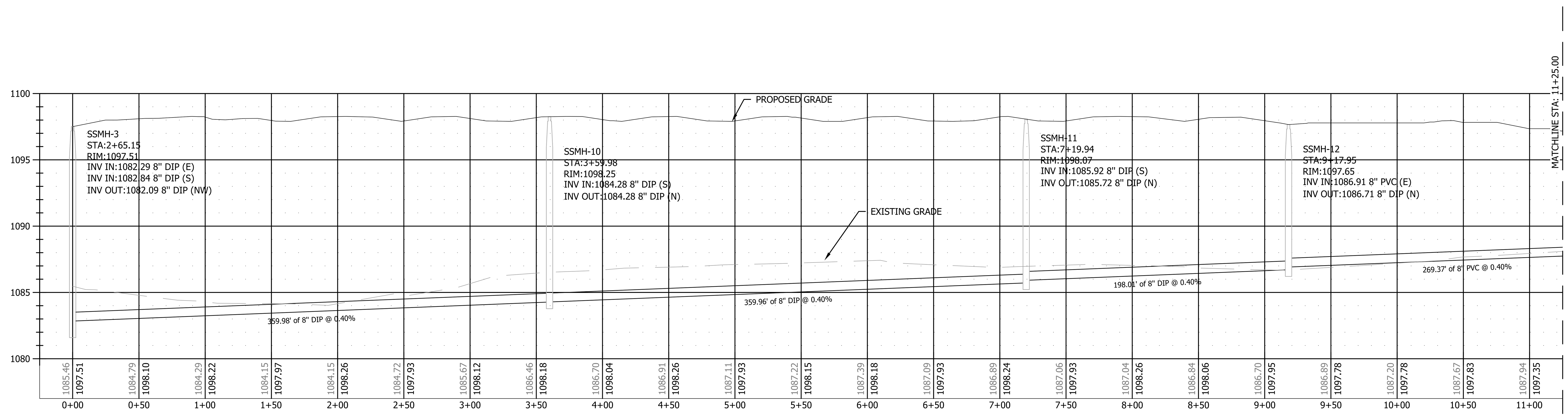
NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-8357
WWW.STJOHNENGINEERING.COM

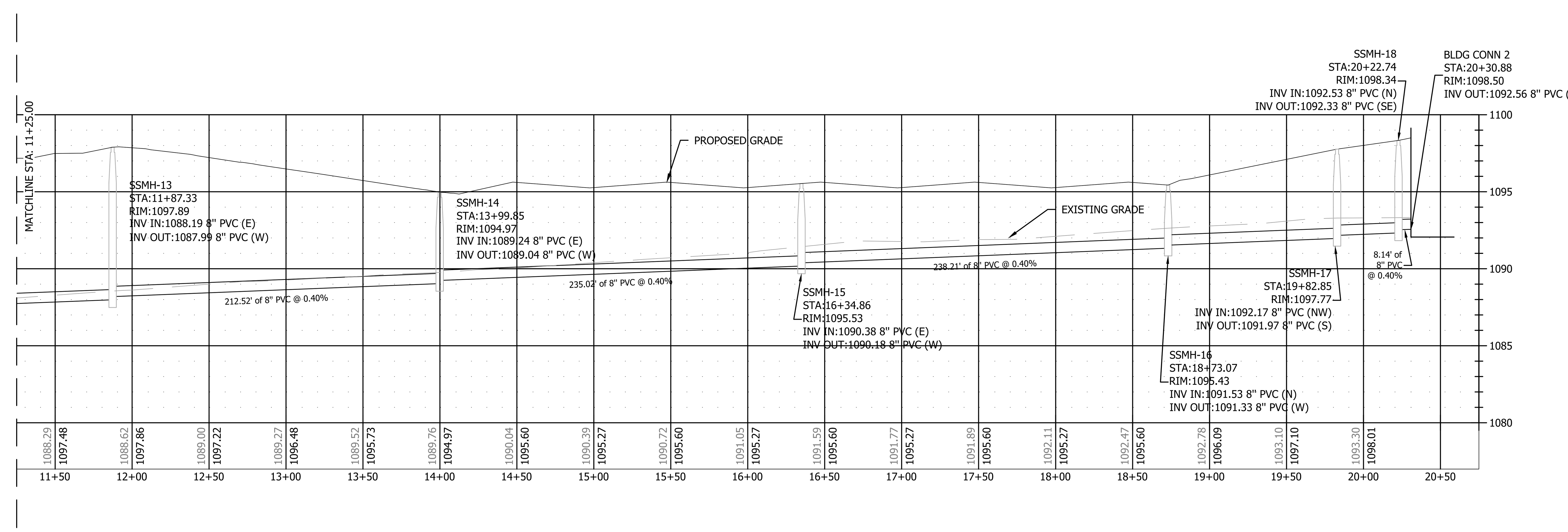
SCOTT C. ST. JOHN
REGISTERED ENGINEER
12/30/24
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.08



SANITARY SEWER - WEST LINE
V. SCALE: 1"=5' | H. SCALE:1"=50'



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE (931) 728-2638 • FAX (931) 728-6357
WWW.STJOHNENGINEERING.COM

SANITARY SEWER PROFILE

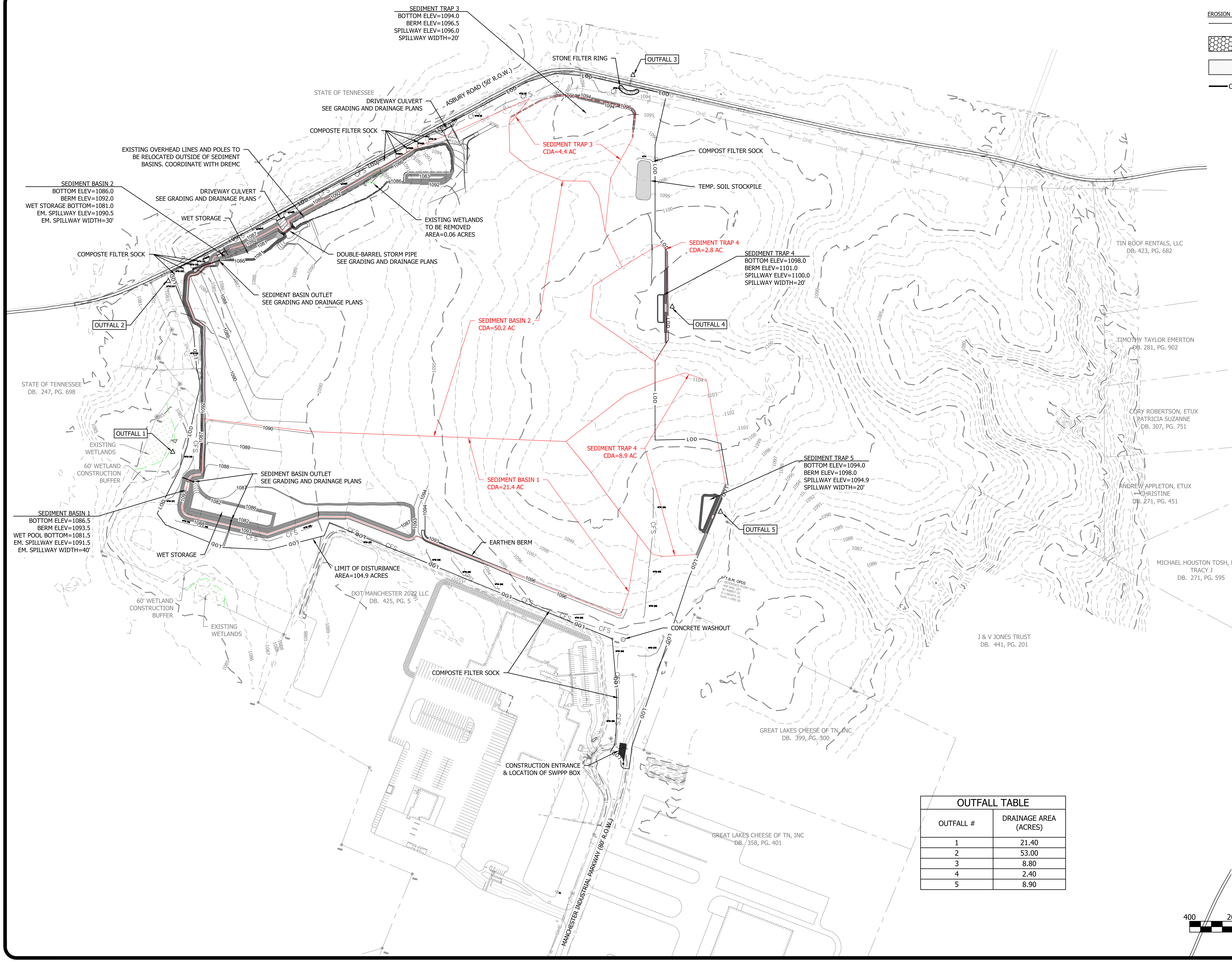
LITTLE LEAF FARMS

MANCHESTER INDURSTRIAL PARK

SCOT C. ST. JOHN
STATE OF TENNESSEE

JOB 1107-01

SHEET C4.09


SEDIMENT TRAP 3
BOTTOM ELEV=1094.0
BERM ELEV=1096.5
SPILLWAY ELEV=1096.0
SPILLWAY WIDTH=20'
STONE FILTER RING
OUTFALL 3
STATE OF TENNESSEE
DRIVEWAY CULVERT
SEE GRADING AND DRAINAGE PLANS
ASBURY ROAD (50' R.O.W.)
COMPOSTE FILTER SOCK
EXISTING OVERHEAD LINES AND POLES TO BE RELOCATED OUTSIDE OF SEDIMENT BASINS. COORDINATE WITH DREMC
SEDIMENT TRAP 3
CDA=4.4 AC
COMPOST FILTER SOCK
TEMP. SOIL STOCKPILE
SEDIMENT BASIN 2
BOTTOM ELEV=1086.0
BERM ELEV=1092.0
WET STORAGE BOTTOM=1081.0
EM. SPILLWAY ELEV=1090.5
EM. SPILLWAY WIDTH=30'
DRIVEWAY CULVERT
SEE GRADING AND DRAINAGE PLANS
WET STORAGE
EXISTING WETLANDS
TO BE REMOVED
AREA=0.06 ACRES
COMPOSTE FILTER SOCK
DOUBLE-BARREL STORM PIPE
SEE GRADING AND DRAINAGE PLANS
SEDIMENT TRAP 4
CDA=2.8 AC
SEDIMENT TRAP 4
BOTTOM ELEV=1098.0
BERM ELEV=1101.0
SPILLWAY ELEV=1100.0
SPILLWAY WIDTH=20'
TIN ROOF RENTALS, LLC
DB. 423, PG. 682
SEDIMENT BASIN OUTLET
SEE GRADING AND DRAINAGE PLANS
OUTFALL 2
SEDIMENT BASIN 2
CDA=50.2 AC
OUTFALL 4
TIMOTHY TAYLOR EMERTON
DB. 281, PG. 902
STATE OF TENNESSEE
DB. 247, PG. 698
CORY ROBERTSON, ETUX
PATRICIA SUZANNE
DB. 307, PG. 751
OUTFALL 1
EXISTING
WETLANDS
SEDIMENT TRAP 4
CDA=8.9 AC
SEDIMENT TRAP 5
BOTTOM ELEV=1094.0
BERM ELEV=1098.0
SPILLWAY ELEV=1094.9
SPILLWAY WIDTH=20'
60' WETLAND
CONSTRUCTION
BUFFER
SEDIMENT BASIN OUTLET
SEE GRADING AND DRAINAGE PLANS
SEDIMENT BASIN 1
CDA=21.4 AC
ANDREW APPLETON, ETUX
CHRISTINE
DB. 271, PG. 451
SEDIMENT BASIN 1
BOTTOM ELEV=1086.5
BERM ELEV=1093.5
WET POOL BOTTOM=1081.5
EM. SPILLWAY ELEV=1091.5
EM. SPILLWAY WIDTH=40'
OUTFALL 5
EARTHEN BERM
WET STORAGE
LIMIT OF DISTURBANCE
AREA=104.9 ACRES
MICHAEL HOUSTON TOSH, ET
TRACY J
DB. 271, PG. 595
DOT MANCHESTER 2022 LLC
DB. 425, PG. 5
60' WETLAND
CONSTRUCTION
BUFFER
EXISTING
WETLANDS
CONCRETE WASHOUT
J & V JONES TRUST
DB. 441, PG. 201
COMPOSTE FILTER SOCK
GREAT LAKES CHEESE OF TN, INC
DB. 399, PG. 300
CONSTRUCTION ENTRANCE
& LOCATION OF SWPPP BOX
GREAT LAKES CHEESE OF TN, INC
DB. 358, PG. 401
MANCHESTER INDUSTRIAL PARKWAY (80' R.O.W.)
N
400 200 0 200 400
SCALE: 1"=200'

EROSION AND SEDIMENTATION CONTROL LEGEND

Symbol	Description
LOD	PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
	ROCK CONST. ENTRANCE
	EROSION CONTROL MATTING
CFS — CFS	COMPOST FILTER SOCK
	TEMP. TOPSOIL STOCKPILE
	PROPOSED INLET PROTECTION
	PROPOSED ROCK APRON
	PROPOSED STILLING BASIN
	CONCRETE WASHOUT LOCATION

WETLANDS

NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:

ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

PAST AND PRESENT LAND USES

THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES

OUTFALL TABLE

OUTFALL #	DRAINAGE AREA (ACRES)
1	21.40
2	53.00
3	8.80
4	2.40
5	8.90

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 • FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

INITIAL EPSC PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
2025

JOB 1107-01

SHEET C5.01

OUTFALL 1

EXISTING WETLANDS

60' WETLAND CONSTRUCTION BUFFER

DETENTION POND FOREBAY

C.O. STAKE EL.=1088.00

EROSION CONTROL MATTING (TYP.)

WET STORAGE

DETENTION POND FOREBAY

C.O. STAKE EL.=1088.00

INLET PROTECTION (TYP.) TO BE REMOVED UPON STABLIZATION OF SITE

5A RAINWATER BASIN 1
BERM=1096.00
BOTTOM=1082.00

SEDIMENT BASIN DEWATERING FACILITY W/BERM, PERF. BARREL & TEMP. RISER, DETAIL #7-18

SECONDARY OUTLET STRUCTURE

RIPRAP OUTLET PROTECTION, TYP.

SEDIMENT BASIN 1
(INFILTRATION BASIN #1)
BERM=1093.50
BOTTOM=1086.50

RIPRAP (TYPICAL)

LIMIT OF DISTURBANCE AREA=104.9 ACRES

COMPOSTE FILTER SOCK (TYP.) TO BE REMOVED UPON STABLIZATION OF SITE

60' WETLAND CONSTRUCTION BUFFER

EXISTING WETLANDS

TREE LINE

RBR

I.P.

18"SS (16)
18"SS (17)
18"SS (18)
24"SS (19)
18"SS (20)
18"SS (21)
18"SS (22)
18"SS (23)
18"SS (24)
18"SS (25)
18"SS (26)
18"SS (27)
18"SS (28)
18"SS (29)
18"SS (30)

REMOVE EXISTING PLUG AND CONNECT TO EXISTING 12" WATER MAIN

EXISTING 12" GATE VALVE

EXISTING FIRE HYDRANT

BOX CULVERT

NATURAL GAS LINE

EROSION AND SEDIMENTATION CONTROL LEGEND

- LOD — PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
- ROCK CONST. ENTRANCE
- EROSION CONTROL MATTING
- CFS — CFS — COMPOST FILTER SOCK
- TEMP. TOPSOIL STOCKPILE
- PROPOSED INLET PROTECTION
- PROPOSED ROCK APRON
- PROPOSED STILLING BASIN
- CONCRETE WASHOUT LOCATION

WETLANDS
NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:
ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES
THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

PAST AND PRESENT LAND USES
THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES

N

160 80 0 80 160
SCALE: 1"=80'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-8357
WWW.STJOHNENGINEERING.COM

EPSC PLAN

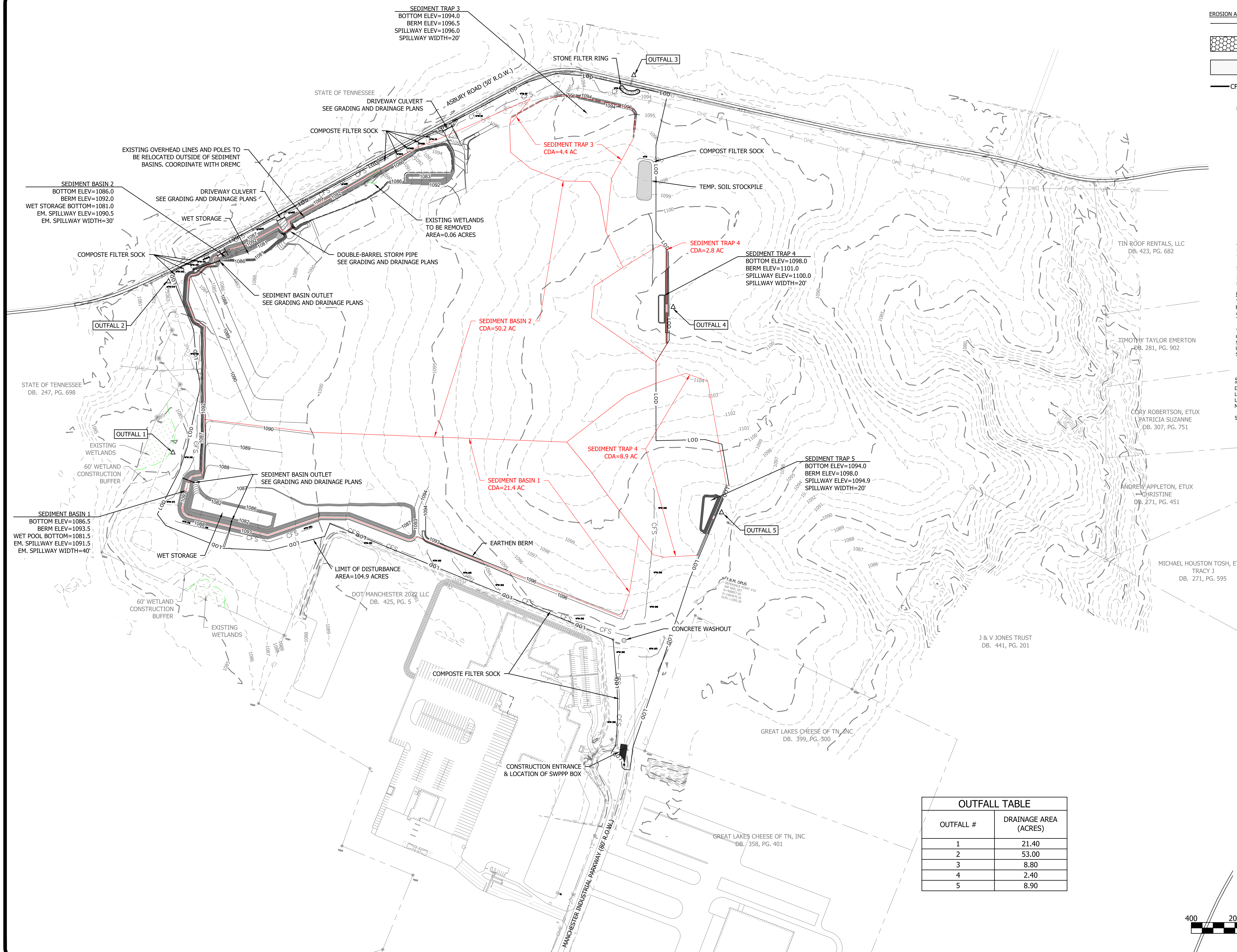
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
2025

JOB 1107-01

SHEET C5.06


SEDIMENT TRAP 3
BOTTOM ELEV=1094.0
BERM ELEV=1096.5
SPILLWAY ELEV=1096.0
SPILLWAY WIDTH=20'
STONE FILTER RING
OUTFALL 3
STATE OF TENNESSEE
DRIVEWAY CULVERT
SEE GRADING AND DRAINAGE PLANS
ASBURY ROAD (50' R.O.W.)
COMPOSTE FILTER SOCK
EXISTING OVERHEAD LINES AND POLES TO
BE RELOCATED OUTSIDE OF SEDIMENT
BASINS. COORDINATE WITH DREMC
SEDIMENT TRAP 3
CDA=4.4 AC
COMPOST FILTER SOCK
TEMP. SOIL STOCKPILE
SEDIMENT BASIN 2
BOTTOM ELEV=1086.0
BERM ELEV=1092.0
WET STORAGE BOTTOM=1081.0
EM. SPILLWAY ELEV=1090.5
EM. SPILLWAY WIDTH=30'
DRIVEWAY CULVERT
SEE GRADING AND DRAINAGE PLANS
WET STORAGE
EXISTING WETLANDS
TO BE REMOVED
AREA=0.06 ACRES
COMPOSTE FILTER SOCK
DOUBLE-BARREL STORM PIPE
SEE GRADING AND DRAINAGE PLANS
SEDIMENT TRAP 4
CDA=2.8 AC
SEDIMENT TRAP 4
BOTTOM ELEV=1098.0
BERM ELEV=1101.0
SPILLWAY ELEV=1100.0
SPILLWAY WIDTH=20'
TIN ROOF RENTALS, LLC
DB. 423, PG. 682
SEDIMENT BASIN OUTLET
SEE GRADING AND DRAINAGE PLANS
OUTFALL 2
SEDIMENT BASIN 2
CDA=50.2 AC
OUTFALL 4
TIMOTHY TAYLOR EMERTON
DB. 281, PG. 902
STATE OF TENNESSEE
DB. 247, PG. 698
CORY ROBERTSON, ETUX
PATRICIA SUZANNE
DB. 307, PG. 751
OUTFALL 1
EXISTING
WETLANDS
60' WETLAND
CONSTRUCTION
BUFFER
SEDIMENT TRAP 4
CDA=8.9 AC
SEDIMENT TRAP 5
BOTTOM ELEV=1094.0
BERM ELEV=1098.0
SPILLWAY ELEV=1094.9
SPILLWAY WIDTH=20'
SEDIMENT BASIN OUTLET
SEE GRADING AND DRAINAGE PLANS
SEDIMENT BASIN 1
CDA=21.4 AC
ANDREW APPLETON, ETUX
CHRISTINE
DB. 271, PG. 451
SEDIMENT BASIN 1
BOTTOM ELEV=1086.5
BERM ELEV=1093.5
WET POOL BOTTOM=1081.5
EM. SPILLWAY ELEV=1091.5
EM. SPILLWAY WIDTH=40'
OUTFALL 5
WET STORAGE
EARTHEN BERM
LIMIT OF DISTURBANCE
AREA=104.9 ACRES
MICHAEL HOUSTON TOSH, ET
TRACY J
DB. 271, PG. 595
DOT MANCHESTER 2022 LLC
DB. 425, PG. 5
60' WETLAND
CONSTRUCTION
BUFFER
EXISTING
WETLANDS
CONCRETE WASHOUT
J & V JONES TRUST
DB. 441, PG. 201
COMPOSTE FILTER SOCK
GREAT LAKES CHEESE OF TN, INC
DB. 399, PG. 300
CONSTRUCTION ENTRANCE
& LOCATION OF SWPPP BOX
GREAT LAKES CHEESE OF TN, INC
DB. 358, PG. 401
MANCHESTER INDUSTRIAL PARKWAY (80' R.O.W.)
N
400 200 0 200 400
SCALE: 1"=200'

OUTFALL TABLE	
OUTFALL #	DRAINAGE AREA (ACRES)
1	21.40
2	53.00
3	8.80
4	2.40
5	8.90

EROSION AND SEDIMENTATION CONTROL LEGEND

- LOD — PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
- ROCK CONST. ENTRANCE
- EROSION CONTROL MATTING
- CFS — COMPOST FILTER SOCK
- TEMP. TOPSOIL STOCKPILE
- PROPOSED INLET PROTECTION
- PROPOSED ROCK APRON
- PROPOSED STILLING BASIN
- CONCRETE WASHOUT LOCATION

WETLANDS
NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:
ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES
THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

PAST AND PRESENT LAND USES
THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

INITIAL EPSC PLAN

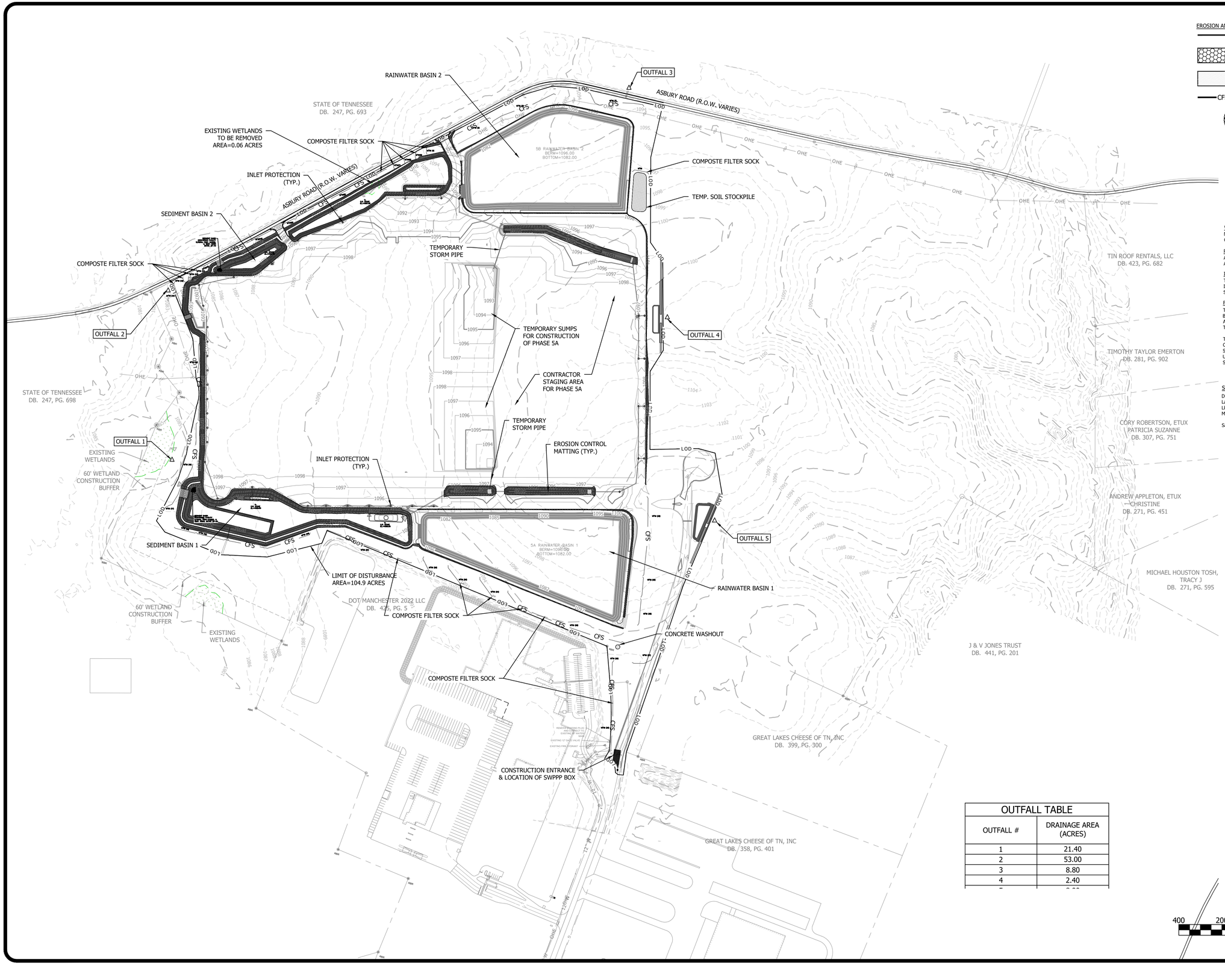
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN — REGISTERED ENGINEER — STATE OF TENNESSEE — 2025

JOB 1107-01

SHEET C5.01



EROSION AND SEDIMENTATION CONTROL LEGEND

- LOD — PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
- ROCK CONST. ENTRANCE
- EROSION CONTROL MATTING
- CFS — CFS — COMPOST FILTER SOCK
- TEMP. TOPSOIL STOCKPILE
- PROPOSED INLET PROTECTION
- PROPOSED ROCK APRON
- PROPOSED STILLING BASIN
- CONCRETE WASHOUT LOCATION

WETLANDS
NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:
ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES
THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

PAST AND PRESENT LAND USES
THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES

OUTFALL TABLE

OUTFALL #	DRAINAGE AREA (ACRES)
1	21.40
2	53.00
3	8.80
4	2.40

N

400 200 0 200 400
SCALE: 1"=200'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-8357
WWW.STJOHNENGINEERING.COM

INTERMEDIATE EPSC PLAN

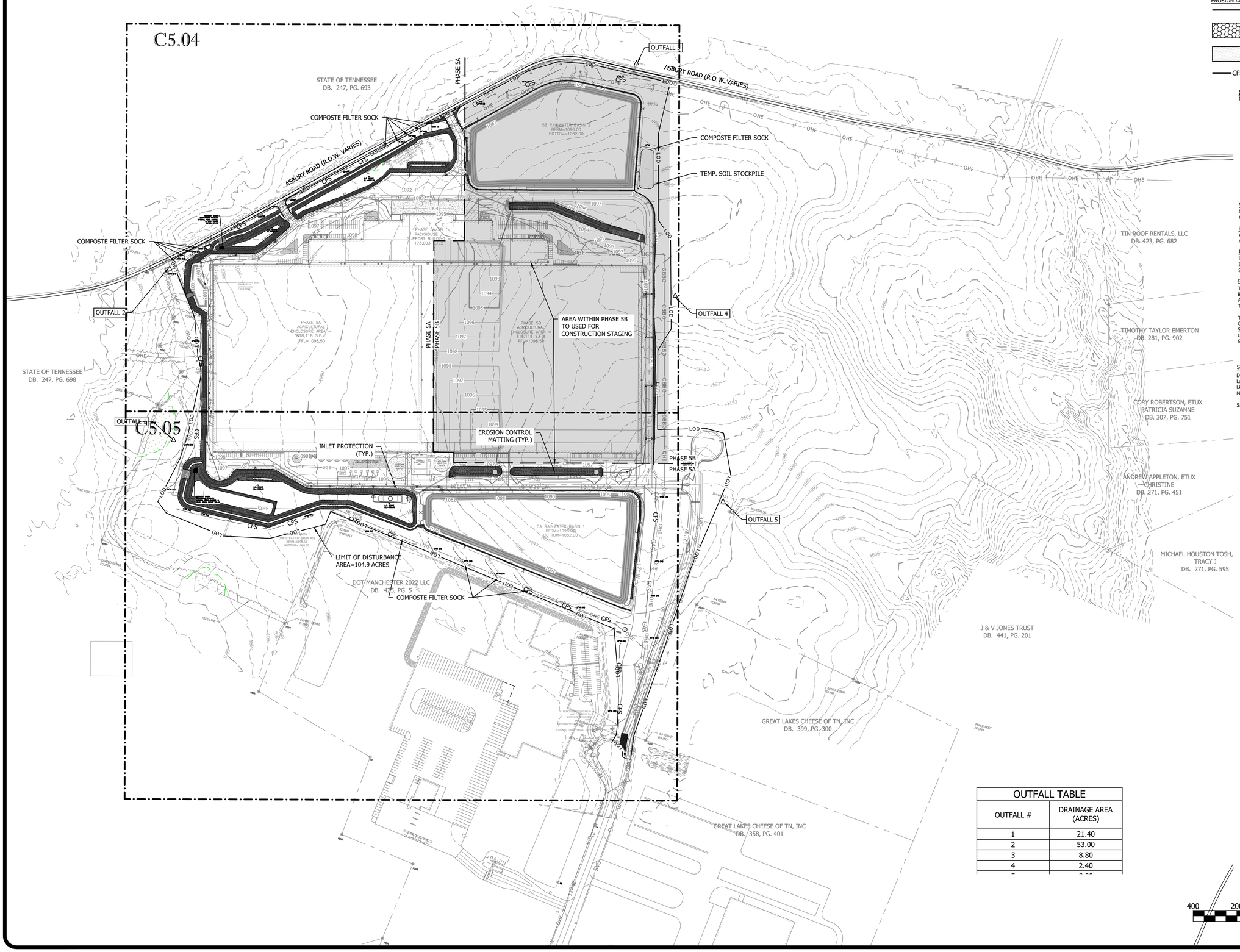
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
2025

JOB 1107-01

SHEET C5.02



EROSION AND SEDIMENTATION CONTROL LEGEND

- LOD — PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
- ROCK CONST. ENTRANCE
- EROSION CONTROL MATTING
- CFS — CFS — COMPOST FILTER SOCK
- TEMP. TOPSOIL STOCKPILE
- PROPOSED INLET PROTECTION
- PROPOSED ROCK APRON
- PROPOSED STILLING BASIN
- CONCRETE WASHOUT LOCATION

WETLANDS
NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:
ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES
THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

PAST AND PRESENT LAND USES
THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES

OUTFALL TABLE

OUTFALL #	DRAINAGE AREA (ACRES)
1	21.40
2	53.00
3	8.80
4	2.40

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-8357
WWW.STJOHNENGINEERING.COM

FINAL EPSC PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOTT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
2025

JOB 1107-01

SHEET C5.03

EROSION AND SEDIMENTATION CONTROL LEGEND

—LOD—	PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
(symbol)	ROCK CONST. ENTRANCE
(symbol)	EROSION CONTROL MATTING
—CFS—CFS—	COMPOST FILTER SOCK
(symbol)	TEMP. TOPSOIL STOCKPILE
(symbol)	PROPOSED INLET PROTECTION
(symbol)	PROPOSED ROCK APRON
(symbol)	PROPOSED STILLING BASIN
(symbol)	CONCRETE WASHOUT LOCATION

WETLANDS

NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:

ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

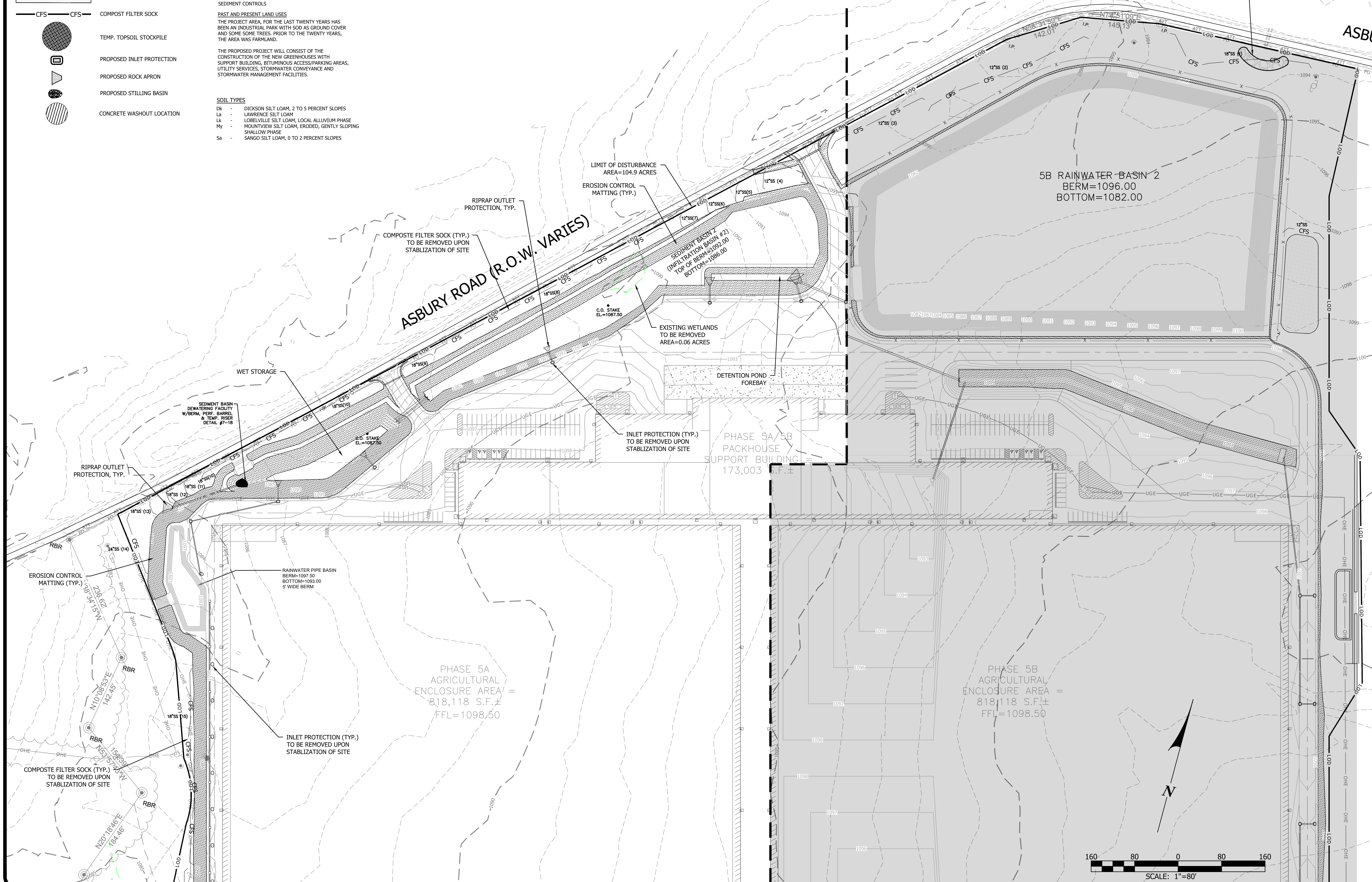
PAST AND PRESENT LAND USES

THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES



NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

EPSC PLAN

LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

JOB 1107-01

SHEET C5.05

OUTFALL 1

EXISTING WETLANDS

60' WETLAND CONSTRUCTION BUFFER

DETENTION POND FOREBAY

C.O. STAKE EL.=1088.00

EROSION CONTROL MATTING (TYP.)

WET STORAGE

DETENTION POND FOREBAY

C.O. STAKE EL.=1088.00

INLET PROTECTION (TYP.) TO BE REMOVED UPON STABLIZATION OF SITE

5A RAINWATER BASIN 1
BERM=1096.00
BOTTOM=1082.00

SEDIMENT BASIN DEWATERING FACILITY W/BERM, PERF. BARREL & TEMP. RISER, DETAIL #7-18

SECONDARY OUTLET STRUCTURE

RIPRAP OUTLET PROTECTION, TYP.

SEDIMENT BASIN 1
(INFILTRATION BASIN #1)
BERM=1093.50
BOTTOM=1086.50

RIPRAP (TYPICAL)

LIMIT OF DISTURBANCE AREA=104.9 ACRES

COMPOSTE FILTER SOCK (TYP.) TO BE REMOVED UPON STABLIZATION OF SITE

60' WETLAND CONSTRUCTION BUFFER

EXISTING WETLANDS

TREE LINE

RBR

I.P.

18"SS (16)
18"SS (17)
18"SS (18)
24"SS (19)
18"SS (20)
18"SS (21)
18"SS (22)
18"SS (23)
18"SS (24)
18"SS (25)
18"SS (26)
18"SS (27)
18"SS (28)
18"SS (29)
18"SS (30)

REMOVE EXISTING PLUG AND CONNECT TO EXISTING 12" WATER MAIN

EXISTING 12" GATE VALVE

EXISTING FIRE HYDRANT

BOX CULVERT

NATURAL GAS LINE

EROSION AND SEDIMENTATION CONTROL LEGEND

- LOD — PROPOSED NPDES BOUNDARY & LIMIT OF DISTURBANCE
- ROCK CONST. ENTRANCE
- EROSION CONTROL MATTING
- CFS — CFS — COMPOST FILTER SOCK
- TEMP. TOPSOIL STOCKPILE
- PROPOSED INLET PROTECTION
- PROPOSED ROCK APRON
- PROPOSED STILLING BASIN
- CONCRETE WASHOUT LOCATION

WETLANDS
NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS OF DISTURBANCE.

PROJECT START DATE:
ANTICIPATED START DATE FOR WORK: 6-1-2025
ANTICIPATED COMPLETION DATE: 6-1-2029

IMPLEMENTATION & MAINTENANCE RESPONSIBILITIES
THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

PAST AND PRESENT LAND USES
THE PROJECT AREA, FOR THE LAST TWENTY YEARS HAS BEEN AN INDUSTRIAL PARK WITH SOD AS GROUND COVER AND SOME SOME TREES. PRIOR TO THE TWENTY YEARS, THE AREA WAS FARMLAND.

THE PROPOSED PROJECT WILL CONSIST OF THE CONSTRUCTION OF THE NEW GREENHOUSES WITH SUPPORT BUILDING, BITUMINOUS ACCESS/PARKING AREAS, UTILITY SERVICES, STORMWATER CONVEYANCE AND STORMWATER MANAGEMENT FACILITIES.

SOIL TYPES

Dk	-	DICKSON SILT LOAM, 2 TO 5 PERCENT SLOPES
La	-	LAWRENCE SILT LOAM
Lk	-	LOBELVILLE SILT LOAM, LOCAL ALLUVIUM PHASE
My	-	MOUNTVIEW SILT LOAM, ERODED, GENTLY SLOPING SHALLOW PHASE
Sa	-	SANGO SILT LOAM, 0 TO 2 PERCENT SLOPES

N

160 80 0 80 160
SCALE: 1"=80'

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 – FAX: (931) 728-8357
WWW.STJOHNENGINEERING.COM

EPSC PLAN

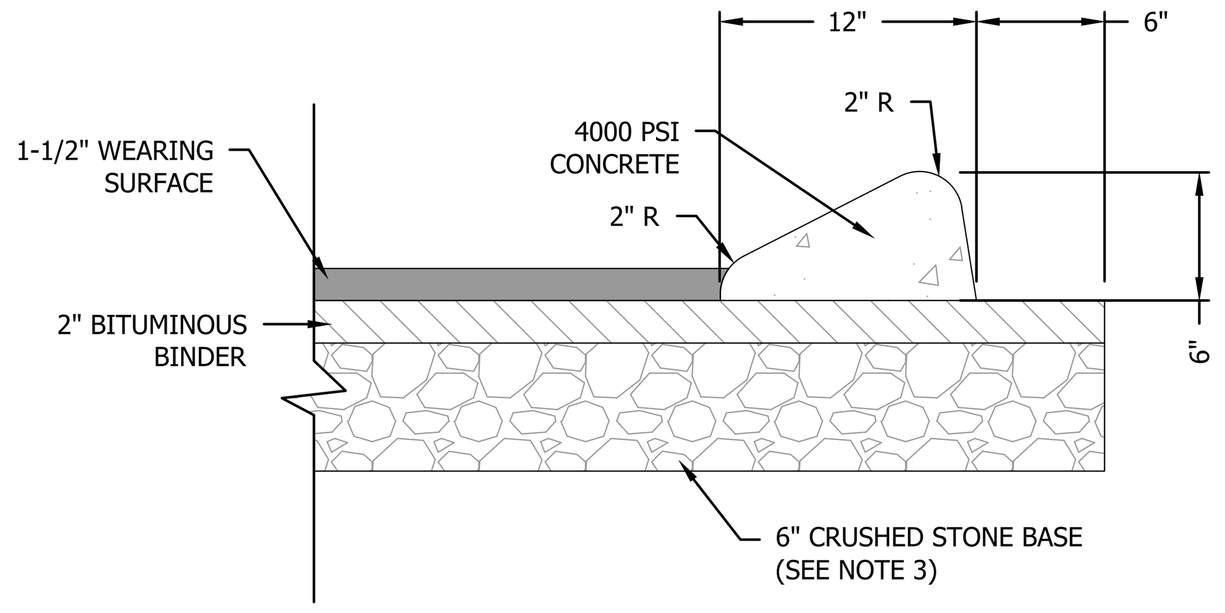
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK

SCOT C. ST. JOHN
REGISTERED ENGINEER
STATE OF TENNESSEE
2025

JOB 1107-01

SHEET C5.06

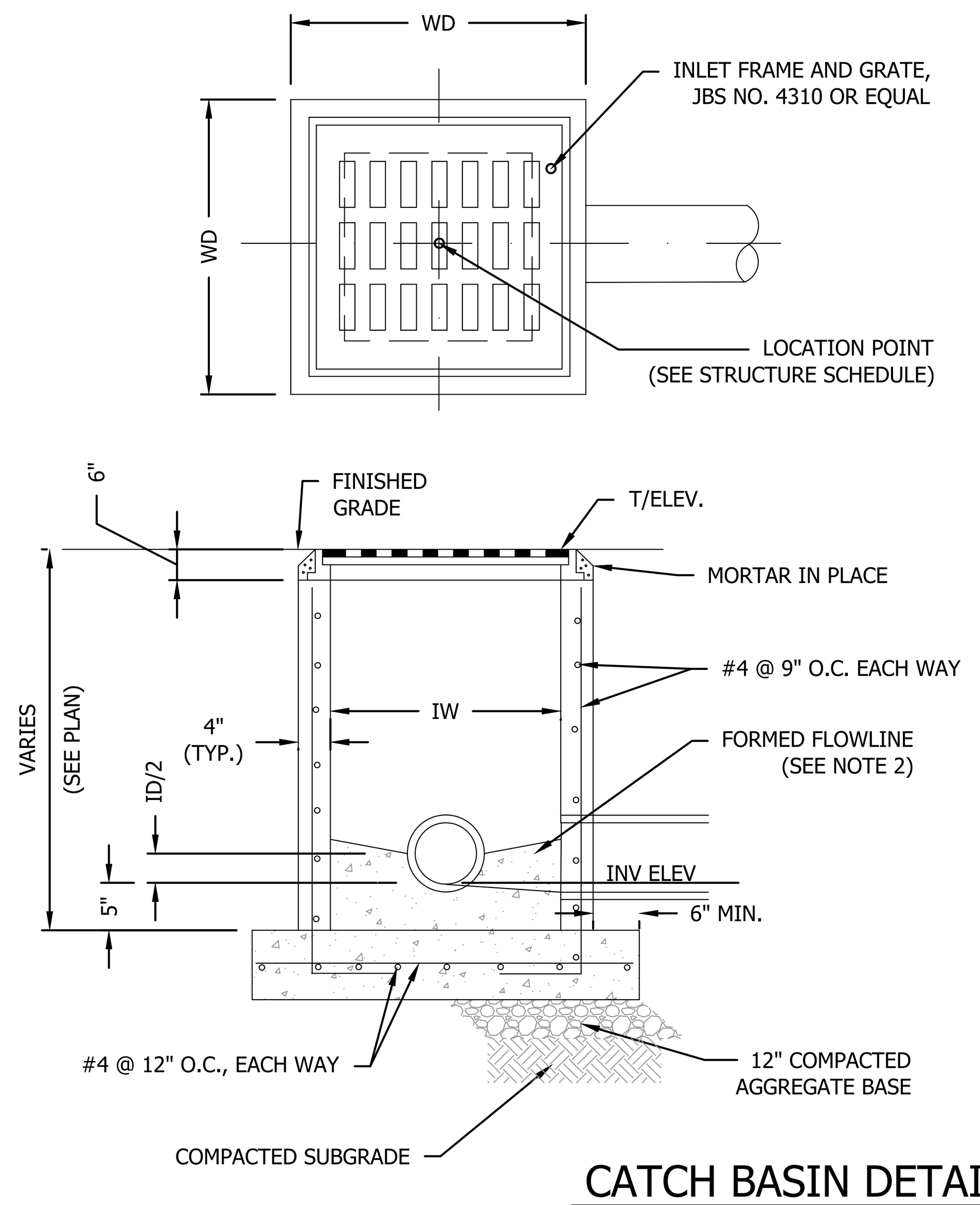


NOTES:
1. ALL ALTERATIONS OR ALTERNATIVES SHALL BE PERMITTED ONLY WITH PRIOR APPROVAL FROM THE PUBLIC WORKS DIRECTOR OR CITY ENGINEER.

2. DEVELOPER SHALL BE RESPONSIBLE FOR ALL WORK REQUIRED FOR CONSTRUCTION OF CURBS SHOWN ON APPROVED PLANS, INCLUDING CURB CUTS FOR DRIVEWAYS,

3. OR OTHER AS REQUIRED BY SUBDIVISION REGULATIONS.

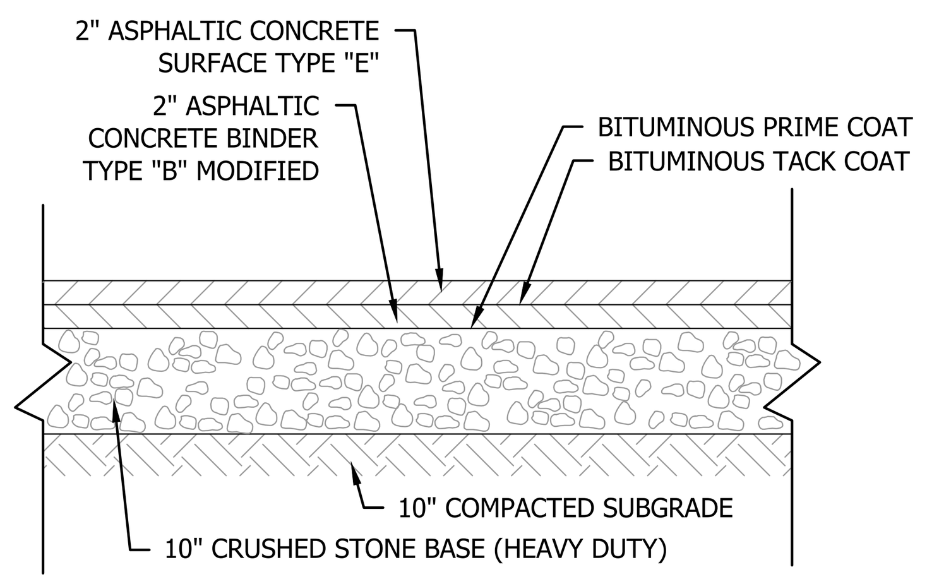
EXTRUDED MOUNTABLE CURB
N.T.S.



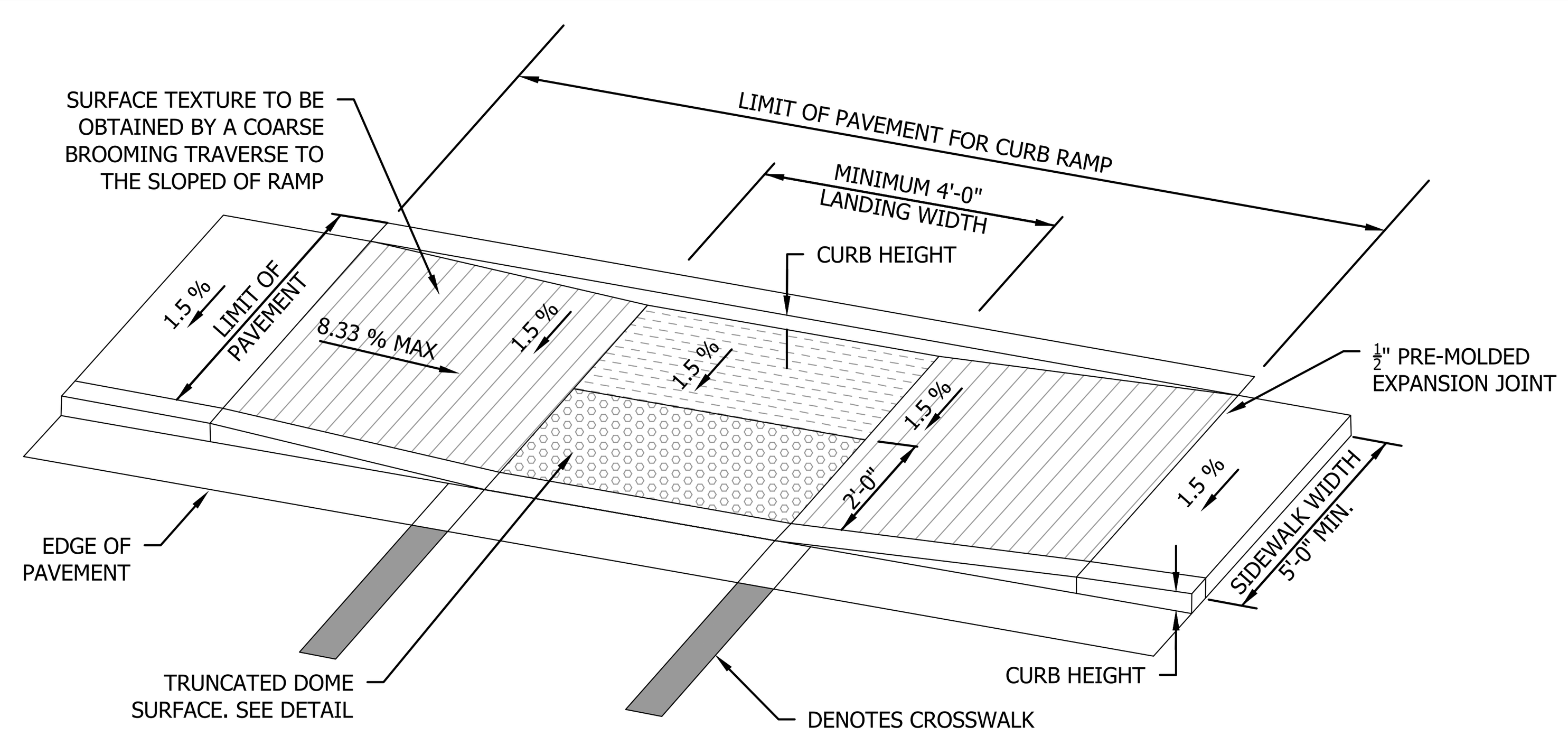
NOTES:

1. SEE PLAN FOR LOCATION, ELEVATION AND PIPE INFORMATION.
2. FLOWLINE OF MANHOLE MAY BE FORMED IN CONCRETE; BUILT UP WITH MORTAR; OR BY LAYING A PIPE THROUGH MANHOLE, THE TOP BEING BROKEN OUT LATER.
3. GROUT ANNULAR SPACE BETWEEN WALL AND PIPE WITH NON-SHRINK MORTAR TO INSURE WATERTIGHT SEAL.
4. ALL CONCRETE TO COMPLY WITH ACI 318 WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. 28 DAY TEST.
5. CATCH BASIN TO BE CONSTRUCTED OF SUFFICIENT SIZE TO ACCOMMODATE INLET AND OUTLET PIPES.
6. STEPS TO BE NEENAH R-1982-W PROVIDED WITHIN 12" OF TOP, 16" O.C.
7. ADJUSTING RINGS OR BRICK ARE REQUIRED TO ADJUST TOP ELEVATION PRIOR TO FINAL PAVING.
8. PRE-CAST CONCRETE STRUCTURE MAY BE USED IN LIEU OF CAST-IN-PLACE WHEN ADEQUATE COVER PERMITS ITS USE AND WHEN APPROVED BY THE ENGINEER.

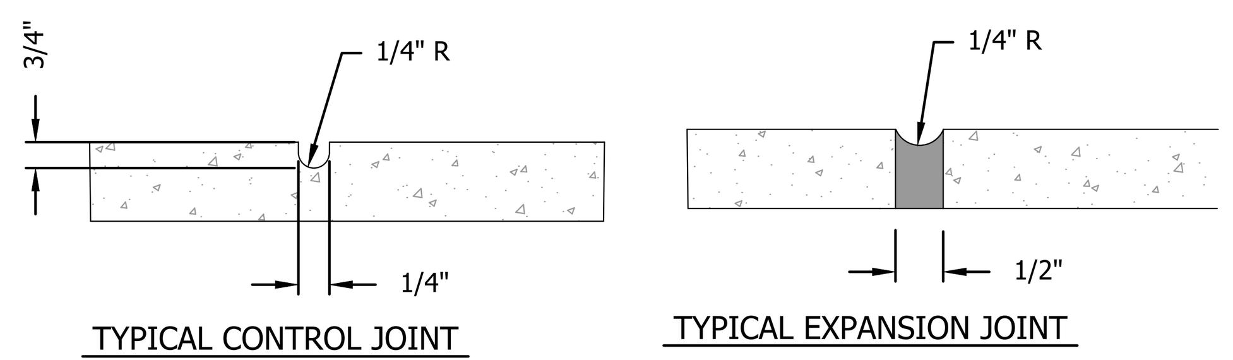
CATCH BASIN DETAIL
N.T.S.



PAVEMENT SECTION
N.T.S.

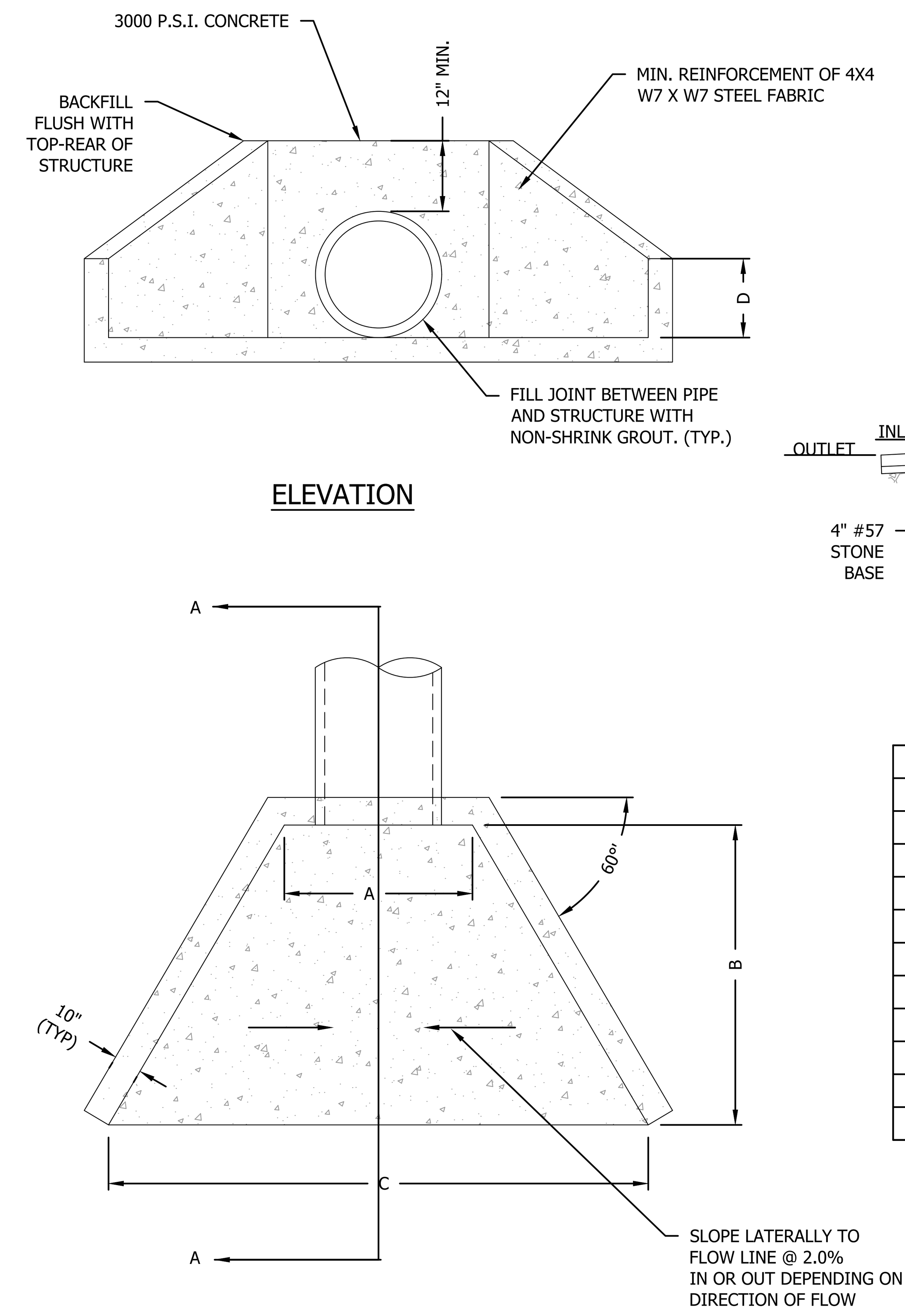


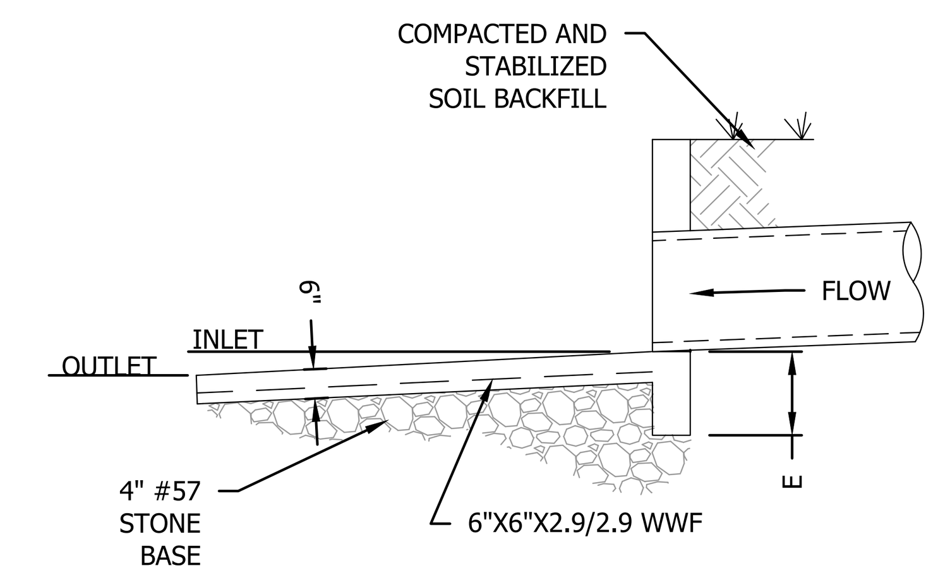
PARALLEL CURB RAMP DETAIL
DIMENSIONS SHOWN ABOVE FOR 0% LONGITUDINAL ROADWAY GRADE



NOTE: EXPANSION JOINTS TO BE SPACED A MAX. OF 30' APART OR AS DIRECTED BY THE ENGINEER TO MEET SPACING OF MARKINGS. CONTRACTION JOINTS TO BE EQUALLY SPACED AT 4' MAXIMUM CENTERS BETWEEN EXPANSION JOINTS.

CONCRETE SIDEWALK JOINTS
N.T.S.



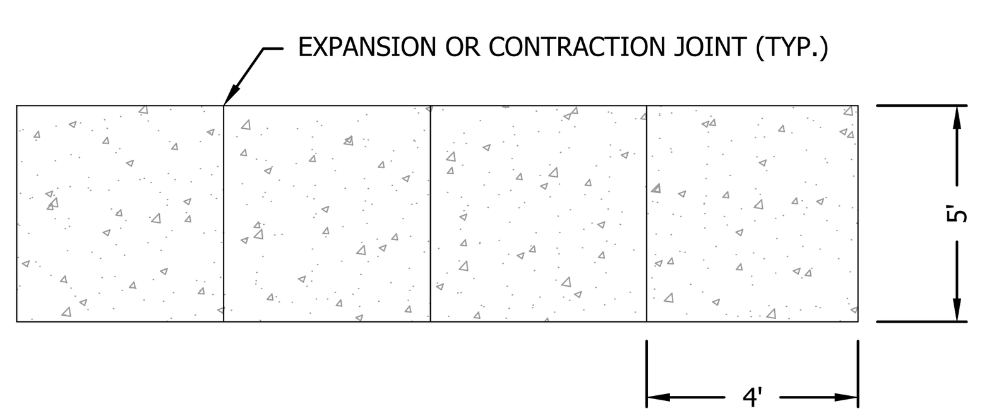


SECTION A-A

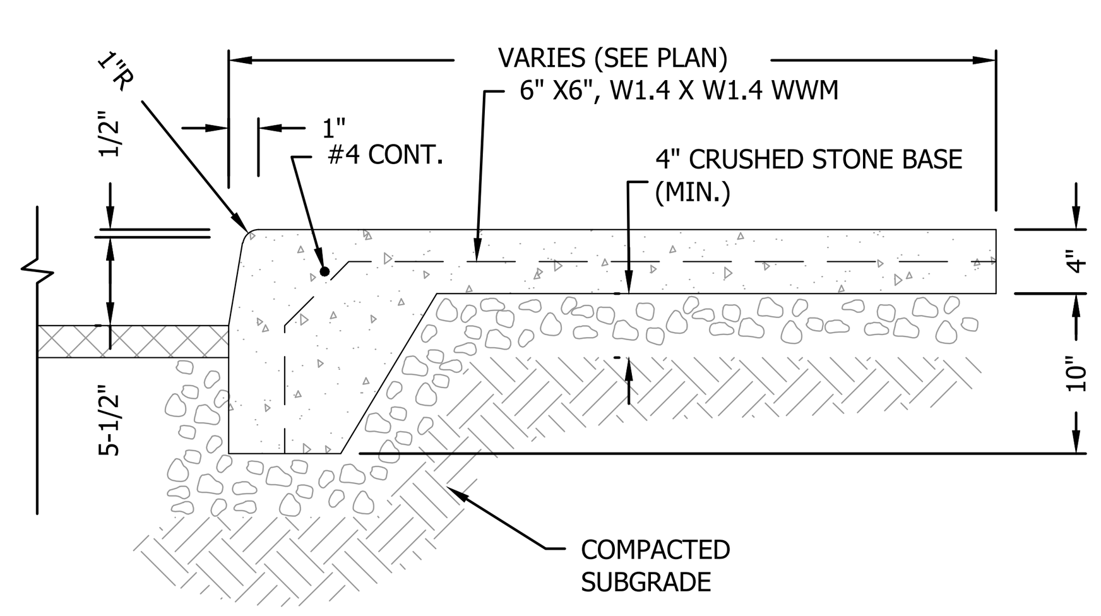
DIMENSIONS TABLE					
DIA.	A	B	C	D	E
12"	20"	30"	60"	6"	8"
15"	23"	36"	72"	6"	8"
18"	28"	42"	84"	9"	8"
24"	34"	48"	96"	9"	8"
30"	40"	54"	108"	12"	10"
36"	48"	60"	120"	15"	10"
42"	54"	66"	132"	18"	10"
48"	60"	72"	144"	21"	12"
54"	66"	78"	156"	24"	12"
60"	72"	84"	168"	24"	12"

NOTE: ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED ONE INCH.

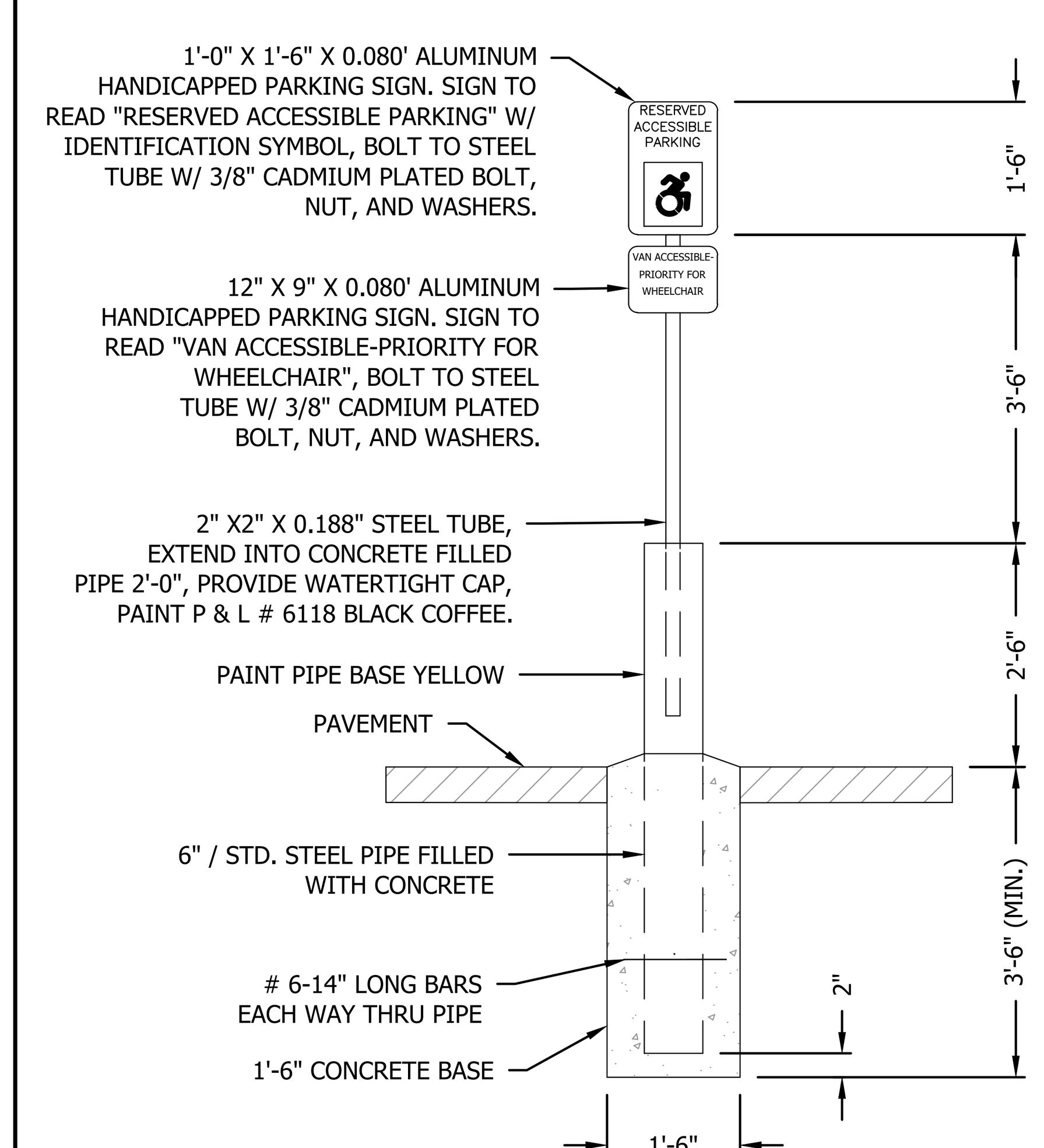
CONCRETE WINGED HEADWALL/ENDWALL
N.T.S.



SIDEWALK PLAN VIEW



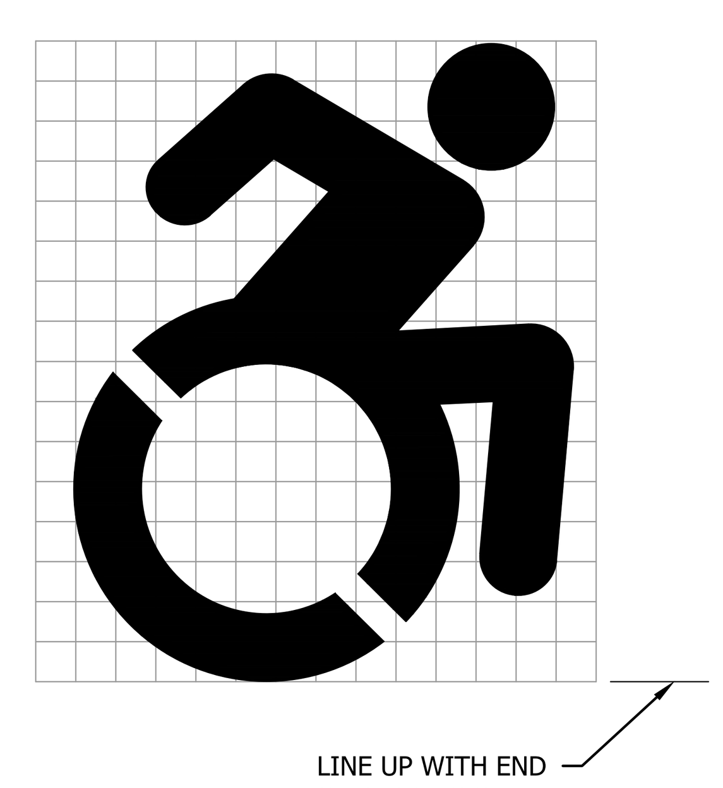
INTEGRAL CONCRETE CURB & WALK
N.T.S.



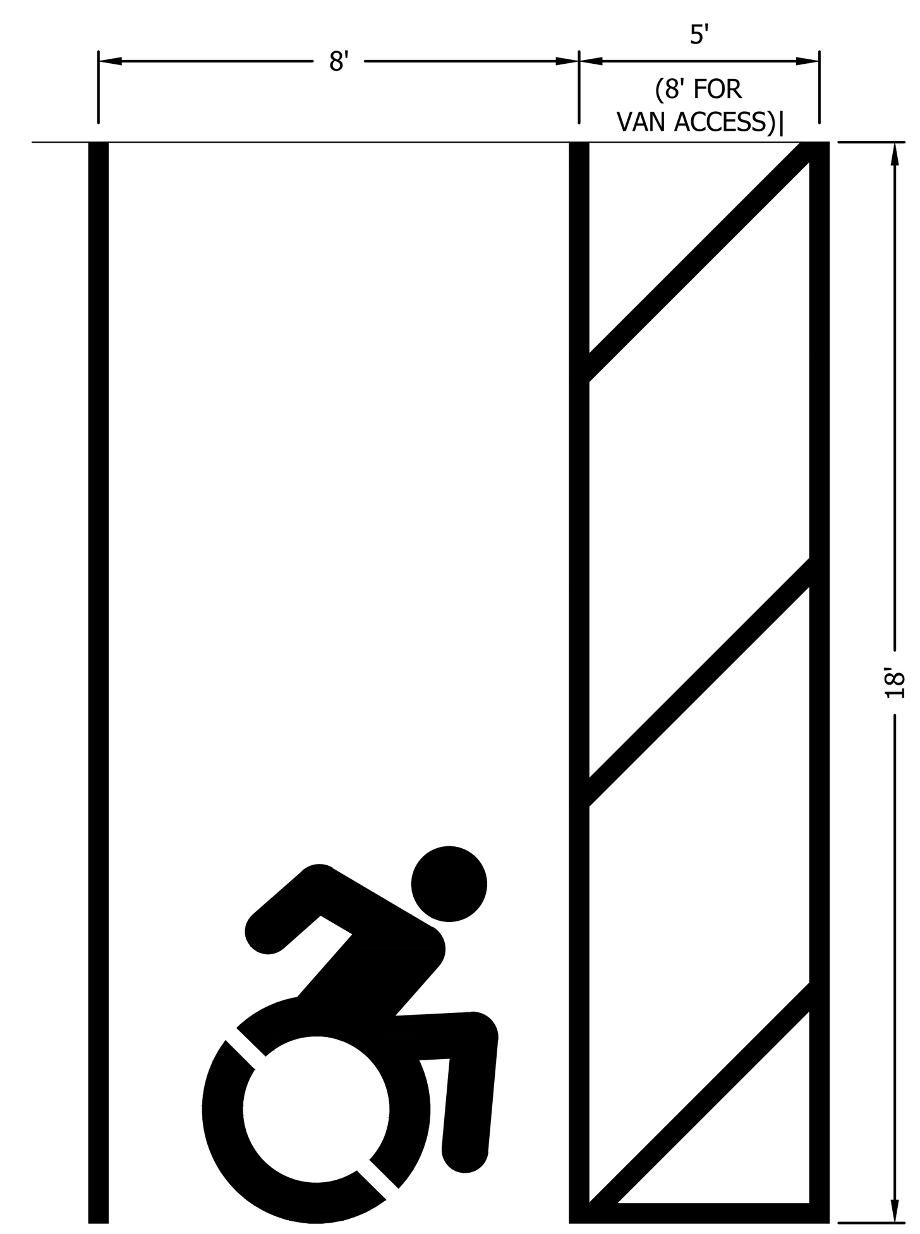
NOTE: HANDICAPPED PARKING SIGN SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.

HANDICAPPED PARKING SIGN
N.T.S.

GRID SHOWN FOR LAYOUT REFERENCE ONLY. GRID BLOCK ARE 2" X 2".

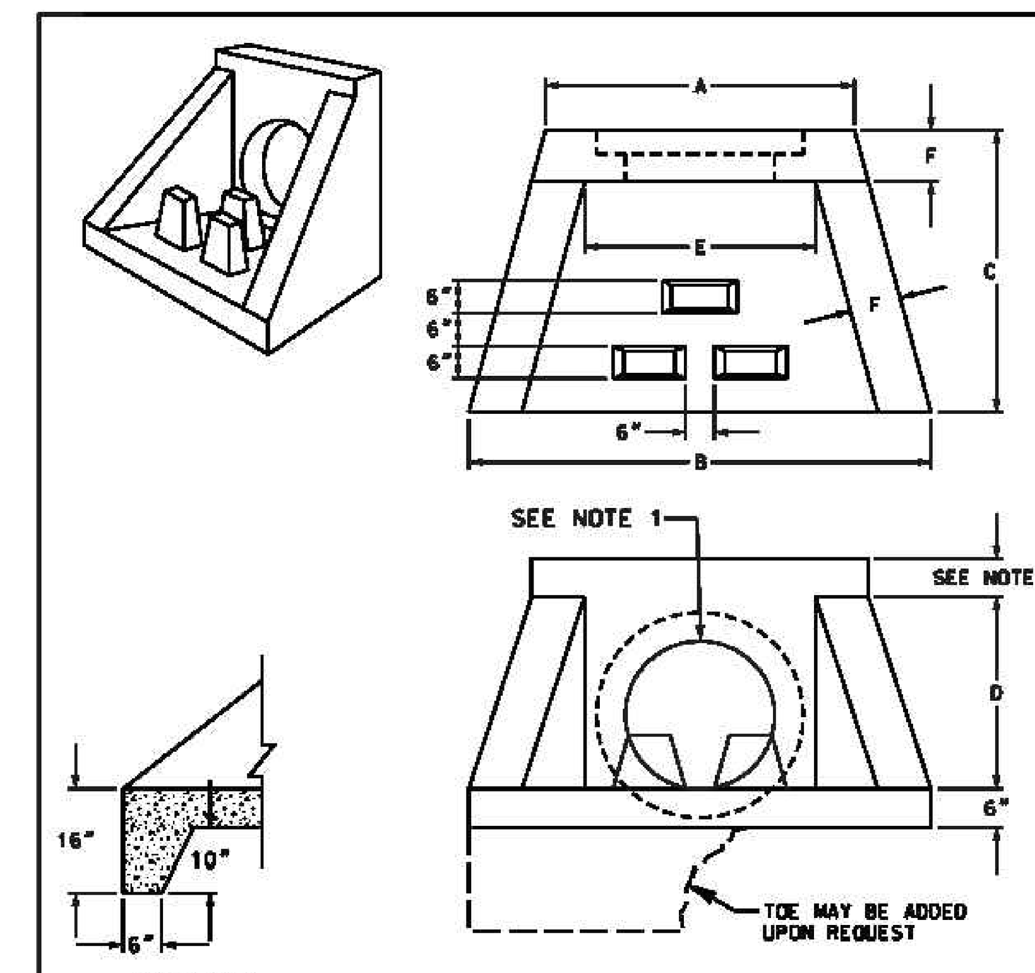


HANDICAP DESIGNATION AT HANDICAP PARKING SPACE



HANDICAP PARKING STALL LAYOUT

HANDICAP PARKING
N.T.S.



PIPE SIZE	AW 12"-15"-18"	BW 24"	CW 30"-36"-42"	DW 48"-54"-60"
A	32"	48"	80"	97.25"
B	48"	72"	102"	120"
C	30"	44"	54"	56"
D	26"	36"	54"	60"
E	24"	36"	64"	83"
F	6"	8"	8"	8"
MAX.OPENING	26"	32"	55"	78"
WT/LB	1,380	3,100	8,100	11,400

GENERAL NOTES:

1. PIPE OPENING IN FACE OF WALL WILL EQUAL PIPE I.D. FOR 12"-36" DIA. PIPE.
2. 0" FOR AW HEADWALL
   6" FOR BW & CW HEADWALL
   6" TO 27" FOR DW HEADWALL
3. AW & BW REQUIRE NO REINFORCEMENT PER SDCI DESIGN

FOLEY PRODUCTS COMPANY — HERMITAGE,TN LENOIR CITY,TN FRANKLIN,TN CHATANOOGA,TN

PRECAST WINGED DISSIPATOR HEADWALL DETAIL	SCALE: NTS	PH: 1-800-737-0707	DWG# ET-202
		DATE:01/23/12	SHEET# 1 OF 1

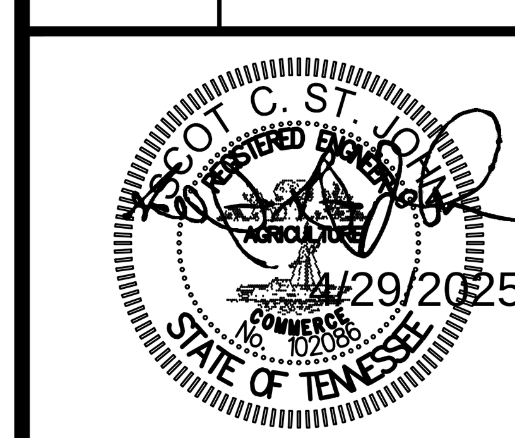
CONCRETE WINGED DISSIPATOR HEADWALL
N.T.S.

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 - FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

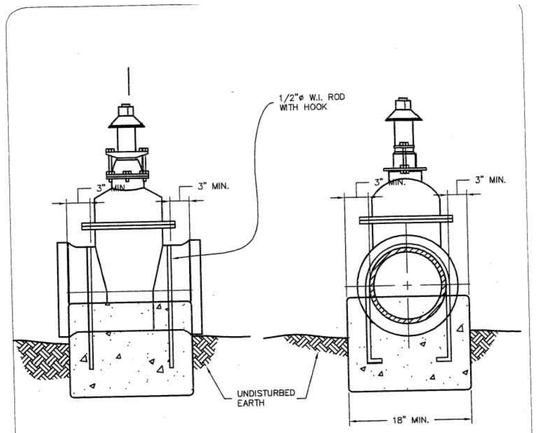
DETAILS

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK



JOB 1107-01

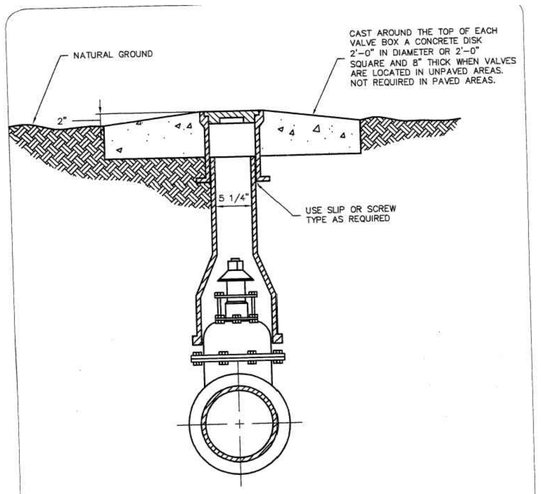
SHEET C6.00



CONCRETE BLOCKING FOR VALVES
N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

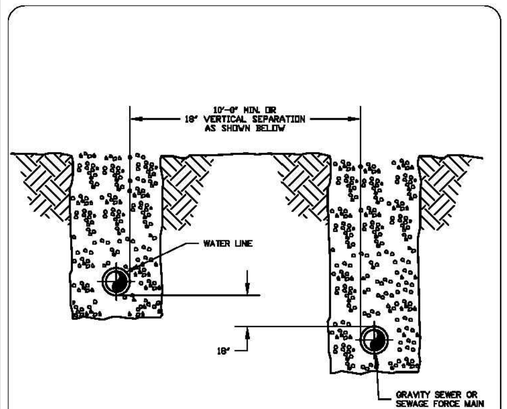
CONCRETE BLOCKING FOR VALVES
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 SEPTEMBER 2003



VALVE BOX SETTING
N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

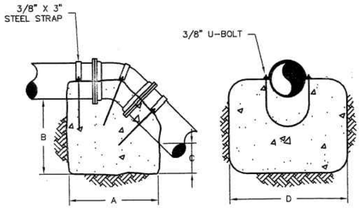
VALVE BOX SETTING
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 SEPTEMBER 2003



PIPELINE SEPARATION DETAIL
N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

PIPELINE SEPARATION DETAIL
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 SEPTEMBER 2003



90° BEND						
SIZE	18"	12"	10"	8"	6"	4"	2"
A	32	30	28	26	24	22	18
B	24	22	20	18	16	14	12
C	24	22	20	18	16	14	12
D	42	36	30	24	20	16	14

45° BEND						
SIZE	18"	12"	10"	8"	6"	4"	2"
A	40	38	36	34	32	30	26
B	24	22	20	18	16	14	12
C	16	12	10	9	8	7	6
D	42	36	30	24	20	16	14

22 1/2° BEND						
SIZE	18"	12"	10"	8"	6"	4"	2"
A	58	48	44	38	34	32	28
B	24	22	20	18	16	14	12
C	20	18	16	14	12	10	8
D	42	36	30	24	20	16	14

11 1/4° BEND						
SIZE	18"	12"	10"	8"	6"	4"	2"
A	60	50	46	40	36	34	30
B	24	22	20	18	16	14	12
C	20	18	16	14	12	10	8
D	42	36	30	24	20	16	14

DIMENSIONS ARE IN INCHES

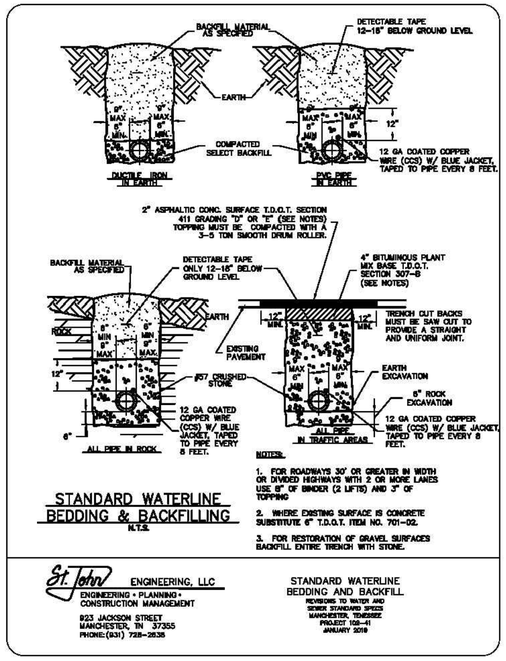
NOTES:
1. POUR CLASS B CONCRETE ANCHOR AGAINST UNDISTURBED EARTH OR ROCK.
2. IF EXACT SIZE PIPE IS NOT SHOWN, USE NEXT LARGER SIZE.

VERTICAL CONCRETE ANCHOR
N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

VERTICAL CONCRETE ANCHOR
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 SEPTEMBER 2003

RESERVED
N.T.S.

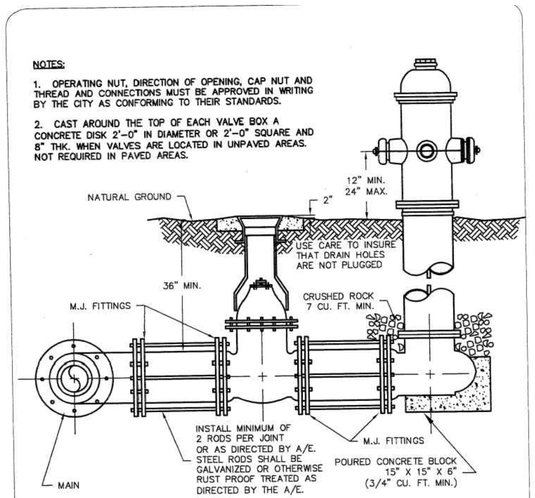


NOTES:
1. FOR ROADWAYS 30' OR GREATER IN WIDTH OR DIVIDED HIGHWAYS WITH 2 OR MORE LANES USE 8" OF BINDER (2 LIFTS) AND 3" OF TOPPING
2. WHERE EXISTING SURFACE IS CONCRETE SUBSTITUTE 6" T.D.O.T. ITEM NO. 701-02.
3. FOR RESTORATION OF GRAVEL SURFACES BACKFILL ENTIRE TRENCH WITH STONE.

STANDARD WATERLINE BEDDING & BACKFILLING
N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

STANDARD WATERLINE BEDDING AND BACKFILL
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 JANUARY 2019

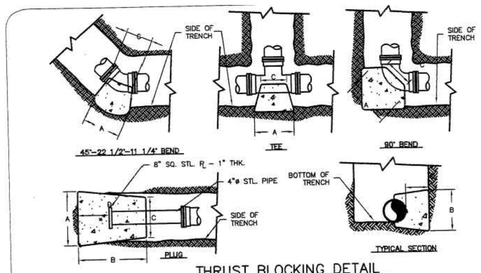


NOTES:
1. OPERATING NUT, DIRECTION OF OPENING, CAP NUT AND THREAD AND CONNECTIONS MUST BE APPROVED IN WRITING BY THE CITY AS CONFORMING TO THEIR STANDARDS.
2. CAST AROUND THE TOP OF EACH VALVE BOX A CONCRETE DISK 2'-0" IN DIAMETER OR 2'-0" SQUARE AND 8" THK. WHEN VALVES ARE LOCATED IN UNPAVED AREAS. NOT REQUIRED IN PAVED AREAS.

FIRE HYDRANT ASSEMBLY
N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

FIRE HYDRANT ASSEMBLY
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 SEPTEMBER 2003



THRUST BLOCKING DETAIL
N.T.S.

NOTES:
1. THRUST BLOCKS DESIGNED FOR 100 PSI PRESSURE AND 1000 PSF SOIL BEARING. FOR GREATER PRESSURE OR LESS SOIL BEARING, QUANTITIES WILL HAVE TO BE RECALCULATED.
2. THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
3. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN, USE NEXT LARGER SIZE.
4. THRUST BLOCKING TO BE POURED IN PLACE CLASS B CONC.

90° BEND						
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	72	64	50	40	33	28	16	16
B	72	64	50	40	33	24	16	16
C	32	30	18	15	12	12	9	9
D	36	32	25	20	16	12	8	8

45° BEND						
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	54	48	37	31	24	18	12	12
B	54	48	37	31	24	18	12	12
C	18	15	14	14	12	12	8	8
D	25	25	18	15	12	9	8	8

22 1/2° BEND						
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	38	34	26	23	18	13	9	9
B	38	34	26	23	18	13	9	9
C	18	18	16	14	12	10	8	8
D	18	18	13	11	9	8	4	4

11 1/4° BEND						
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	27	24	18	16	13	11	8	8
B	27	24	18	16	13	11	8	8
C	18	18	16	14	12	10	8	8
D	14	12	9	8	6	5	4	4

PLUG						
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	60	54	55	43	34	28	28	28
B	60	54	55	43	34	28	28	28
C	72	64	50	40	33	28	16	16
D	54	44	32	22	15	11	11	11

TEE												
SIZE RUN / BRANCH	18"	16"	12"	10"	8"	6"	18"-16"-16"	16"-12"-12"	12"-10"-10"	10"-8"-8"	8"-6"-6"	6"-4"-4"
A	60	54	55	43	34	28	43	34	28	28	28	28
B	60	54	55	43	34	28	43	34	28	28	28	28
C	72	64	50	40	33	28	40	33	28	16	16	16
D	36	30	26	21	13	11	21	13	13	11	11	11

DIMENSIONS ARE IN INCHES

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

THRUST BLOCKING DETAIL
REVISIONS TO WATER AND SEWER STANDARD SPECS MANCHESTER, TENESSEE PROJECT 102-41 SEPTEMBER 2003

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 - FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

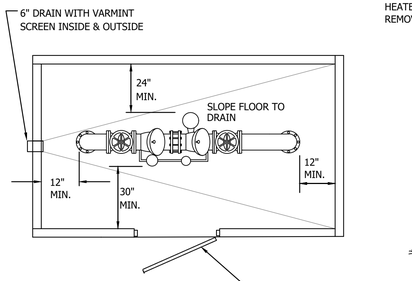
DETAILS

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

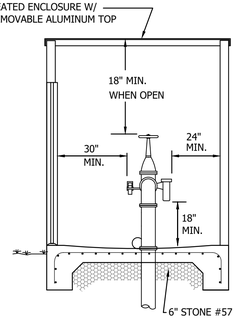
NICOLE C. ST. JOHN
REGISTERED ENGINEER
CONSULTANT
129/2025
STATE OF TENNESSEE

JOB 1107-01

SHEET C6.01

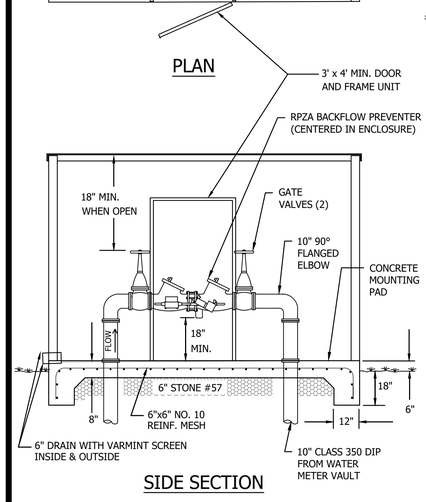


PLAN



END SECTION

INSTALL ALL ITEMS ACCORDING TO MANUFACTURER'S SPECIFICATIONS



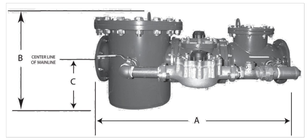
SIDE SECTION

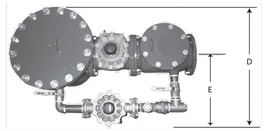
NOTES:

1. CONTRACTOR SHALL COORDINATE INSTALLATION OF BACKFLOW PREVENTER WITH THE CITY OF MANCHESTER.
2. RPBP TO REMAIN ACCESSABLE AT ALL TIMES.
3. THIS DRAWING INDICATES MINIMUM CLEARANCE AND ACCESS ONLY.
4. INLET PIPING MUST BE OF DUCTILE IRON. DUCTILE PIPE TO EXTEND A MINIMUM 36" OUTSIDE THE BOX.
5. CONCRETE PAD SHALL BE SIZED PER ENCLOSURE MANUFACTURER'S INSTRUCTIONS AND SLOPED 1/8" PER FOOT TOWARDS THE DRAIN HOLE SIDE(S). REINFORCEMENT SHALL BE #4 RBR @12" O.C. E.W. & (2) #4 CONT. RBR IN FOOTING, ALL ON 3" CHAIRS.
6. HEATED ENCLOSURE SHALL BE WATTS BOX WB-E10 (OR APPROVED EQUAL) AND SHALL BE INSTALLED AND OUTFITTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. BACKFLOW PREVENTER SHALL BE 10" WATTS LF909M1-OSY-FS 10 REDUCED PRESSURE ZONE ASSEMBLY (OR APPROVED EQUAL).
8. GATE VALVES SHALL BE AWWA C509 RESILIENT SEATED DUCTILE IRON WITH CLASS 150 FLANGES AND NON-RISING STEMS.
9. PIPE SHALL BE ANSI C150 CLASS 350 DUCTILE IRON WITH BITUMINOUS (OR EPOXY) COATING (APPLIED AFTER PIPE ASSEMBLY & TESTING).
10. FITTINGS ABOVEGROUND SHALL BE ANSI C110 DUCTILE IRON WITH CLASS 150 FLANGES.
11. PIPE STUB-UPS SHALL BE ANSI C150 CLASS 350 DUCTILE IRON AND SHALL BE ADDITIONALLY RESTRAINED BY STAINLESS STEEL RODS.
12. PIPE PENETRATIONS SHALL BE SEALED WITH ASTM C1107 NON-SHRINK GROUT.
13. CONCRETE ANCHORS SHALL BE ASTM C881 POST INSTALLED EPOXY ANCHORS INSTALLED IN ACCORDANCE WITH EPOXY MANUFACTURER'S INSTRUCTIONS.
14. ADJUSTABLE PIPE STANDS (2 REQ'D) SHALL BE FABRICATED, HOT-DIPPED GALVANIZED STEEL.
15. ELECTRICAL SERVICE SHALL BE PROVIDED TO POWER 3kW HEATER (NOT SHOWN). SEE CORRESPONDING ELECTRICAL DRAWINGS.

DOUBLE CHECK VALVE ASSEMBLY

N.T.S.



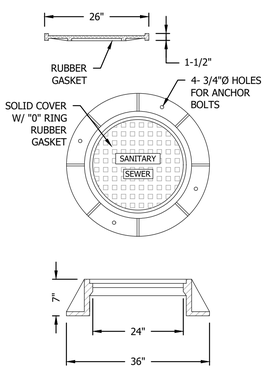


FSAA Model Includes Disc Bypass Meter	4 in. (100 mm)	6 in. (150 mm)	6 in. (150 mm)	6 in. (150 mm)	8 in. (200 mm)	10 in. (250 mm)
Meter & Pipe Size	4 in. (100 mm)		6 in. (150 mm)	6 in. (150 mm)	8 in. (200 mm)	10 in. (250 mm)
Disc Bypass Meter	1 in. (25 mm)	1 in. (25 mm)	1-1/2 in. (38 mm)	2 in. (50 mm)	2 in. (50 mm)	2 in. (50 mm)
Shipping Weight Fully Assembled	312 lb (142 kg)	507 lb (230 kg)	507 lb (230 kg)	507 lb (230 kg)	767 lb (348 kg)	1073 lb (487 kg)
Length (A)	33 in. (838 mm)	45 in. (1143 mm)	45 in. (1143 mm)	45 in. (1143 mm)	53 in. (1346 mm)	68 in. (1727 mm)
Height (B)	20-5/8 in. (524 mm)	22-3/8 in. (568 mm)	22-3/8 in. (568 mm)	22-3/8 in. (568 mm)	25-1/16 in. (637 mm)	25-5/16 in. (643 mm)
Height (C)	10-5/8 in. (270 mm)	11-1/16 in. (281 mm)	11-1/16 in. (281 mm)	11-1/16 in. (281 mm)	12-1/16 in. (306 mm)	14-13/16 in. (376 mm)
Height (D)	23-3/16 in. (589 mm)	30 in. (762 mm)	34-1/4 in. (870 mm)	34-1/4 in. (870 mm)	35-5/8 in. (902 mm)	34-1/2 in. (876 mm)
Height (E)	16-7/16 in. (418 mm)	20-1/2 in. (521 mm)	24-3/4 in. (629 mm)	24-3/4 in. (629 mm)	23 in. (584 mm)	20-3/4 in. (527 mm)

RECORDALL FIRE SERIES ASSEMBLIES (FSAA) COLD WATER METER & STRAINER WITH DISC BYPASS

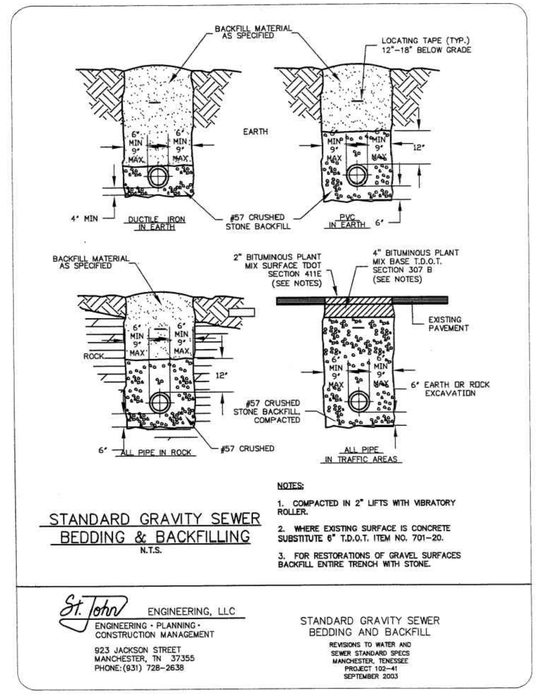
N.T.S.

FRAME AND COVER SHALL BE JOHN BOUCHARD 1150, OR APPROVED EQUAL.



STANDARD MANHOLE FRAME & COVER

N.T.S.



STANDARD GRAVITY SEWER BEDDING & BACKFILLING

N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

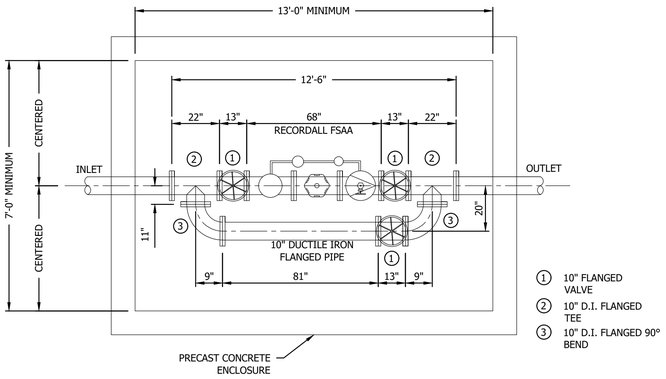
STANDARD GRAVITY SEWER BEDDING AND BACKFILL
REVISIONS TO WATER AND SEWER STANDARD SPECS
MANCHESTER, TENESSEE
PROJECT 102-41
SEPTEMBER 2003

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

DETAILS

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

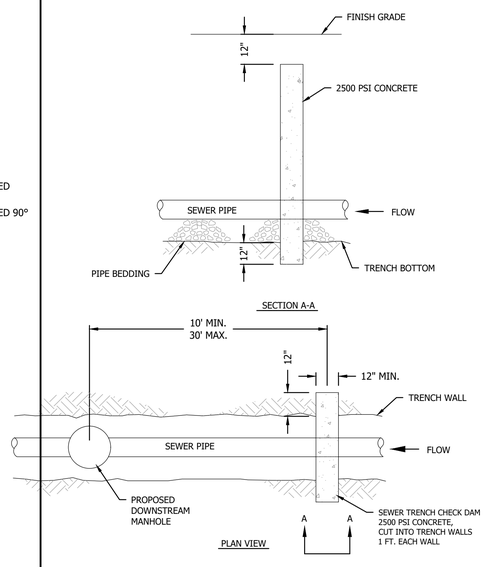


NOTES:

1. ALL BOLTS AND GASKETS BY SUPPLIER. BOLTS AND OTHER HARDWARE SHALL BE TYPE 316 STAINLESS STEEL. ANTI-SEIZE LUBRICANT SHALL BE USED ON THREADS OF ALL BOLTS.
2. MINOR VARIATION IS TO BE EXPECTED IN THE OVERALL LENGTHS OF THE METER, VALVES, AND FITTINGS SUPPLIED. THEREFORE, THE CONTRACTOR SHOULD VERIFY THAT THE ENTIRE METER AND BYPASS LINE ASSEMBLY CAN BE CONTAINED WITHIN THE DIMENSIONS OF THE PRECAST CONCRETE ENCLOSURE AS SHOWN IN THE DETAIL.
3. THE CONCRETE ENCLOSURE SHALL HAVE PRECAST HOLES AND FLEXIBLE RUBBER CONNECTORS APPROPRIATELY SIZED FOR THE SERVICE LINE DIAMETER AND MATERIAL TO PROVIDE A WATER-TIGHT SEAL.
4. ALL JOINTS IN THE CONCRETE ENCLOSURE SHALL BE SEALED WITH BUTYL RUBBER AND EXTERIOR JOINT WRAP SUCH AS CONSEAL CS-212, OR EQUAL TO PROVIDE A WATER-TIGHT JOINT.
5. A SUMP WITH COVER SHALL BE CAST INTO THE BOTTOM SLAB OF THE CONCRETE ENCLOSURE FOR DEWATERING.
6. THE CONCRETE ENCLOSURE ACCESS HATCH SHALL BE A DOUBLE DOOR ACCESS HATCH WITH 60"X60" OPENING AS PRODUCED BY HALLIDAY PRODUCTS (MODEL NO. W2S6060). THE DRAINPIPE FOR THE ACCESS HATCH SHALL BE CAST INTO THE TOP SLAB OF THE CONCRETE ENCLOSURE AND PLACED TO DISCHARGE OUT THE SIDE OF THE STRUCTURE.
7. THE CONCRETE ENCLOSURE SHALL BE SET AT AN ELEVATION TO ALLOW THE ACCESS HATCH DRAINPIPE TO DISCHARGE A MINIMUM OF 3" ABOVE FINISH GRADE ADJACENT TO THE STRUCTURE AND ALLOW POSITIVE DRAINAGE AWAY FROM THE ENCLOSURE.
8. A MINIMUM OF 12" CLEARANCE SHALL BE PROVIDED BELOW THE FLANGES OF THE METER, VALVES, AND FITTINGS.
9. A MINIMUM OF 30" OF COVER SHALL BE PROVIDED OVER THE SERVICE LINE OUTSIDE OF THE CONCRETE VAULT.
10. SHOP DRAWINGS OF THE PRECAST CONCRETE VAULT WITH HATCH SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING.
11. GATE VALVES AND METER SHALL BE SUPPORTED WITH STAINLESS STEEL PIPE SUPPORTS (OR WITH CONCRETE SUPPORT BLOCKS)

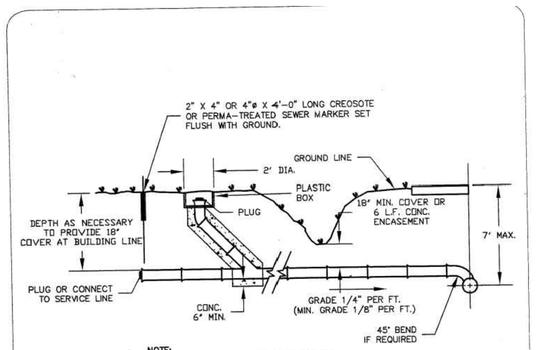
COMPOUND WATER METER ASSEMBLY WITH BYPASS

N.T.S.



SEWER TRENCH CHECK DAM

N.T.S.



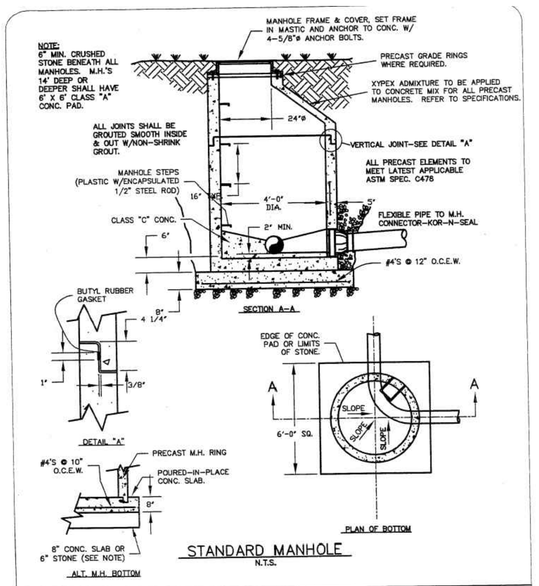
NOTE:
CLEANOUT TO BE LOCATED AT PROPERTY LINE OR CHANGE IN DIRECTION.

SANITARY SEWER LATERALS

N.T.S.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

SANITARY SEWER LATERALS
REVISIONS TO WATER AND SEWER STANDARD SPECS
MANCHESTER, TENESSEE
PROJECT 102-41
SEPTEMBER 2003

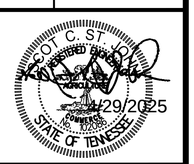


STANDARD MANHOLE

N.T.S.

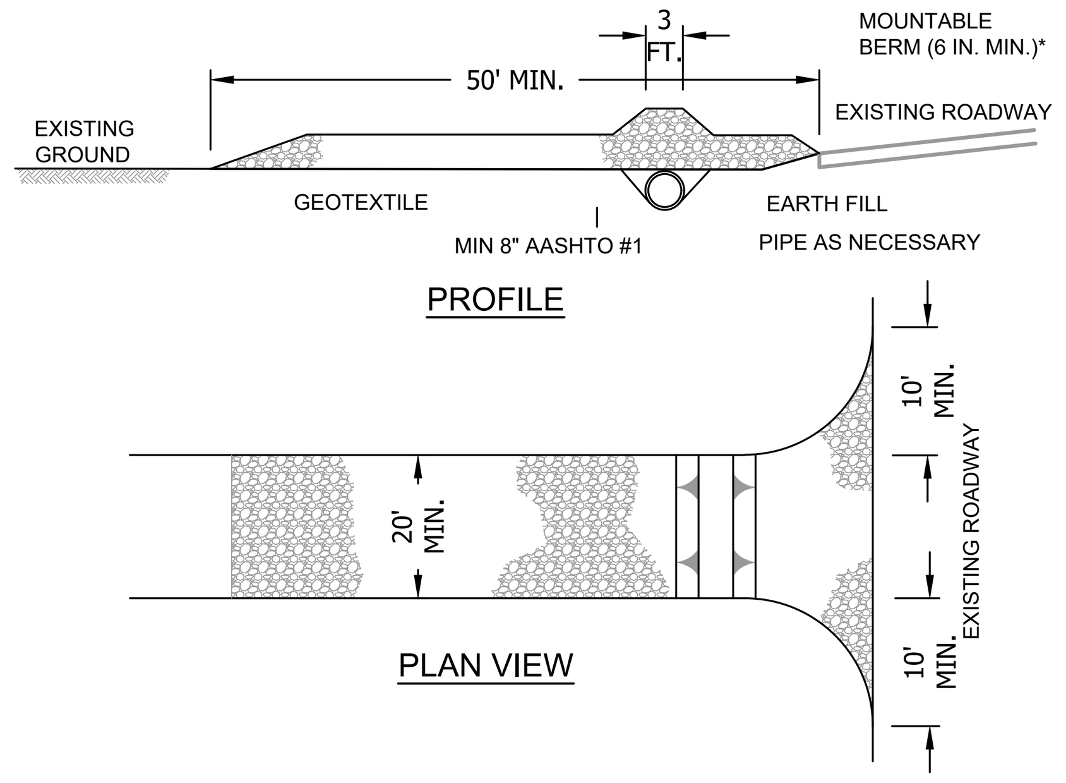
St. John ENGINEERING, LLC
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE:(931) 728-2638

STANDARD MANHOLE DETAIL
REVISIONS TO WATER AND SEWER STANDARD SPECS
MANCHESTER, TENESSEE
PROJECT 102-41
SEPTEMBER 2003



JOB 1107-01

SHEET C6.02



NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

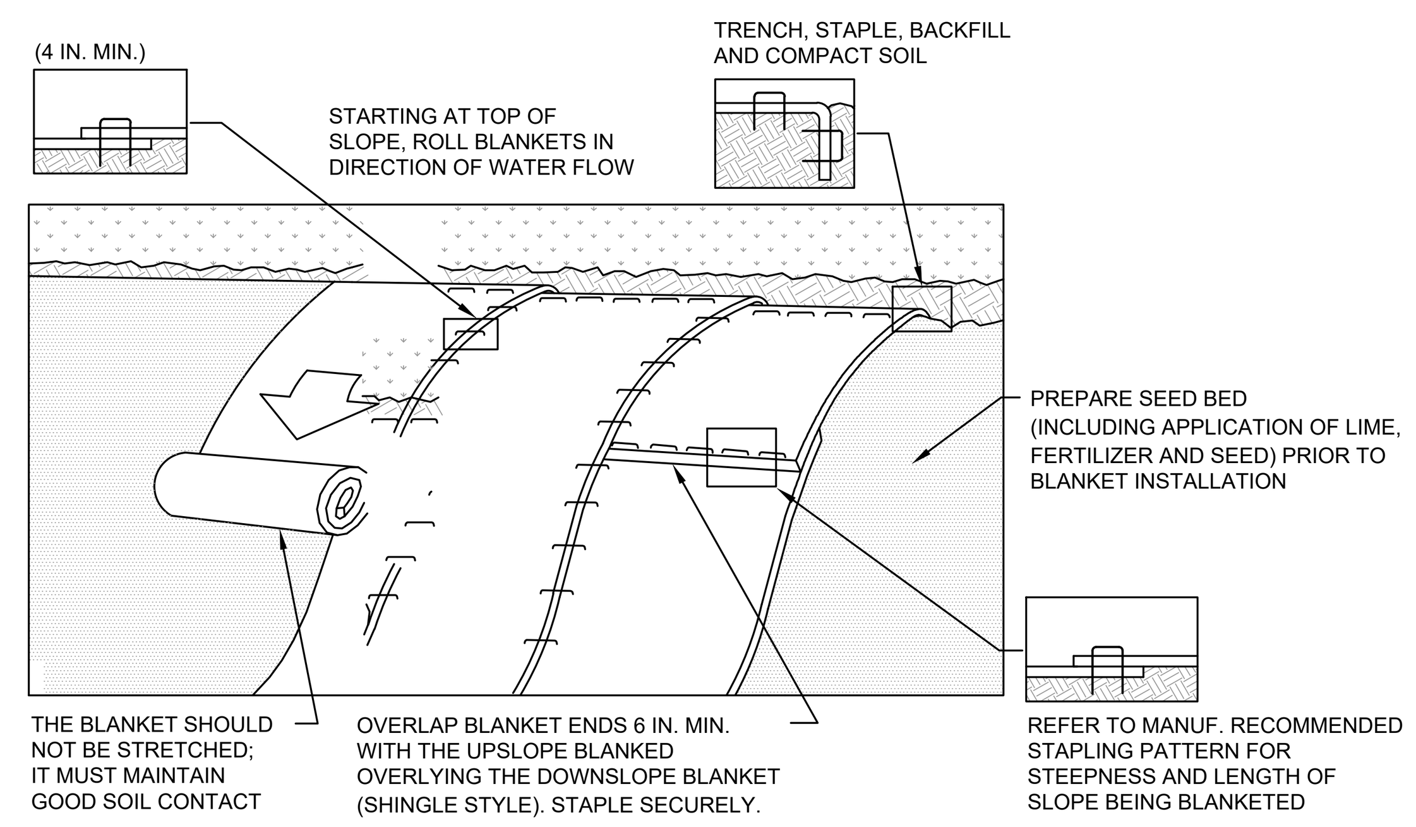
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-1
ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

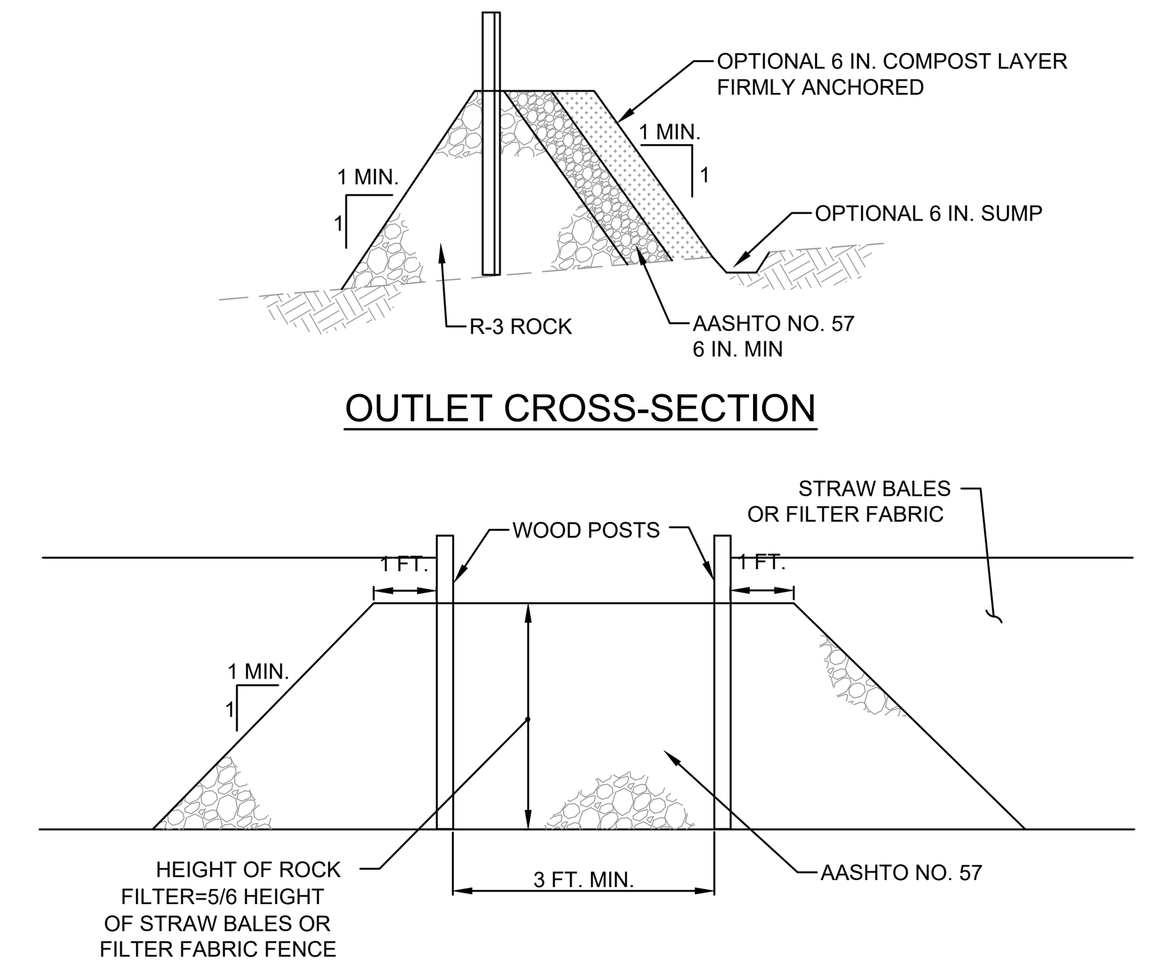
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE



NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6
ROCK FILTER OUTLET

NOT TO SCALE

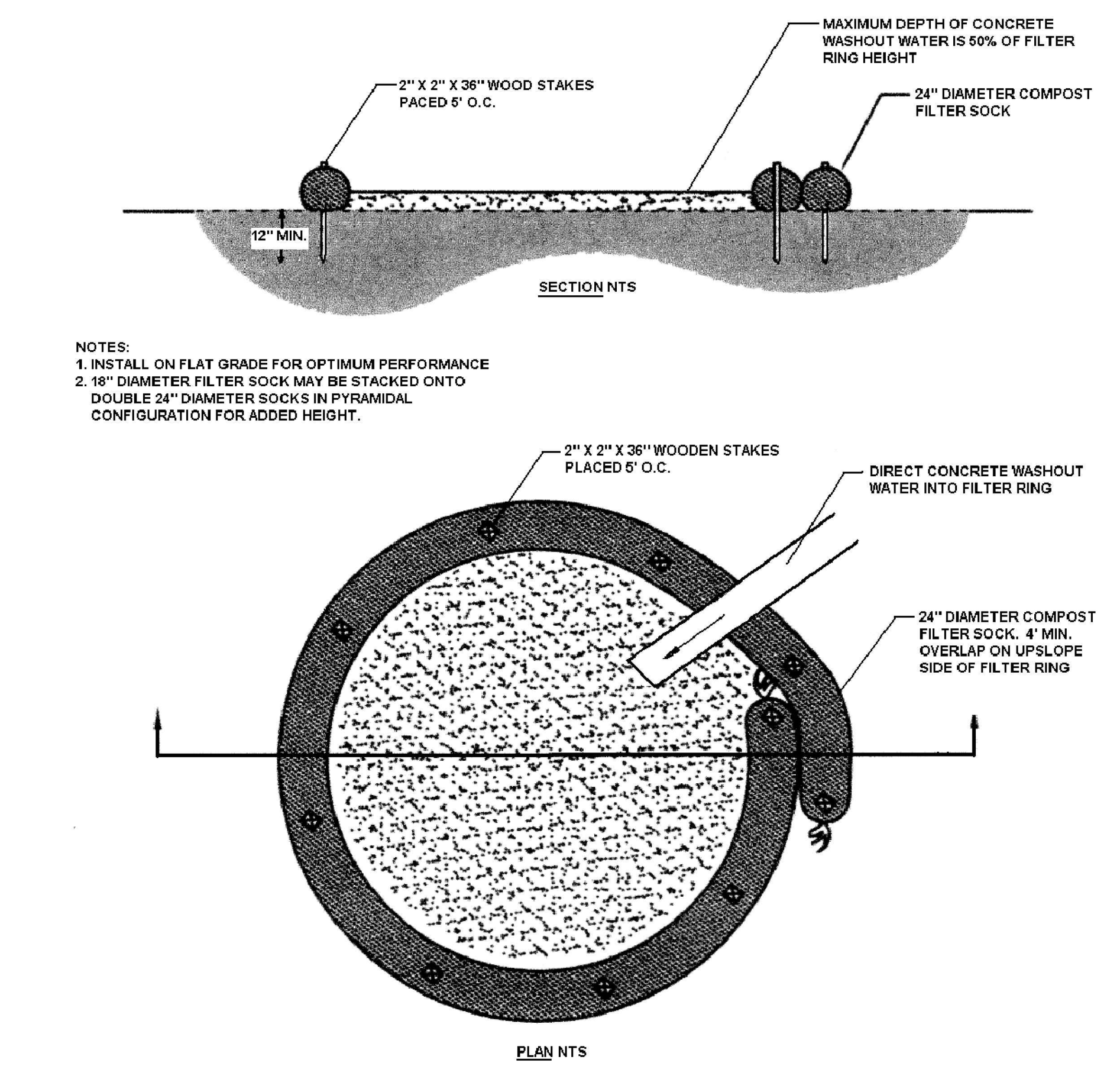


FIGURE 3.18
Typical Compost Sock Washout Installation

CONCRETE WASHOUT
FOR ANY PROJECT ON WHICH CONCRETE WILL BE POURED OR OTHERWISE FORMED ON SITE, A SUITABLE WASHOUT FACILITY MUST BE PROVIDED FOR THE CLEANING OF CHUTES, MIXERS, AND HOPPERS OF THE DELIVERY VEHICLES UNLESS SUCH A FACILITY WILL BE USED AT THE SOURCE OF THE CONCRETE. UNDER NO CIRCUMSTANCES MAY WASH WATER FROM THESE VEHICLES BE ALLOWED TO ENTER ANY SURFACE WATERS. MAKE SURE THAT PROPER SIGNAGE IS PROVIDED TO DRIVERS SO THAT THEY ARE AWARE OF THE PRESENCE OF WASHOUT FACILITIES.
WASHOUT FACILITIES SHOULD NOT BE PLACED WITHIN 50 FEET OF STORM DRAINS, OPEN DITCHES OR SURFACE WATERS. THEY SHOULD BE IN A CONVENIENT LOCATION FOR THE TRUCKS, PREFERABLY NEAR THE PLACE WHERE THE CONCRETE IS BEING POURED, BUT FAR ENOUGH FROM OTHER VEHICULAR TRAFFIC TO MINIMIZE THE POTENTIAL FOR ACCIDENTAL DAMAGE OR SPILLS. WHEREVER POSSIBLE, THEY SHOULD BE LOCATED ON SLOPES NOT EXCEEDING A 2% GRADE.

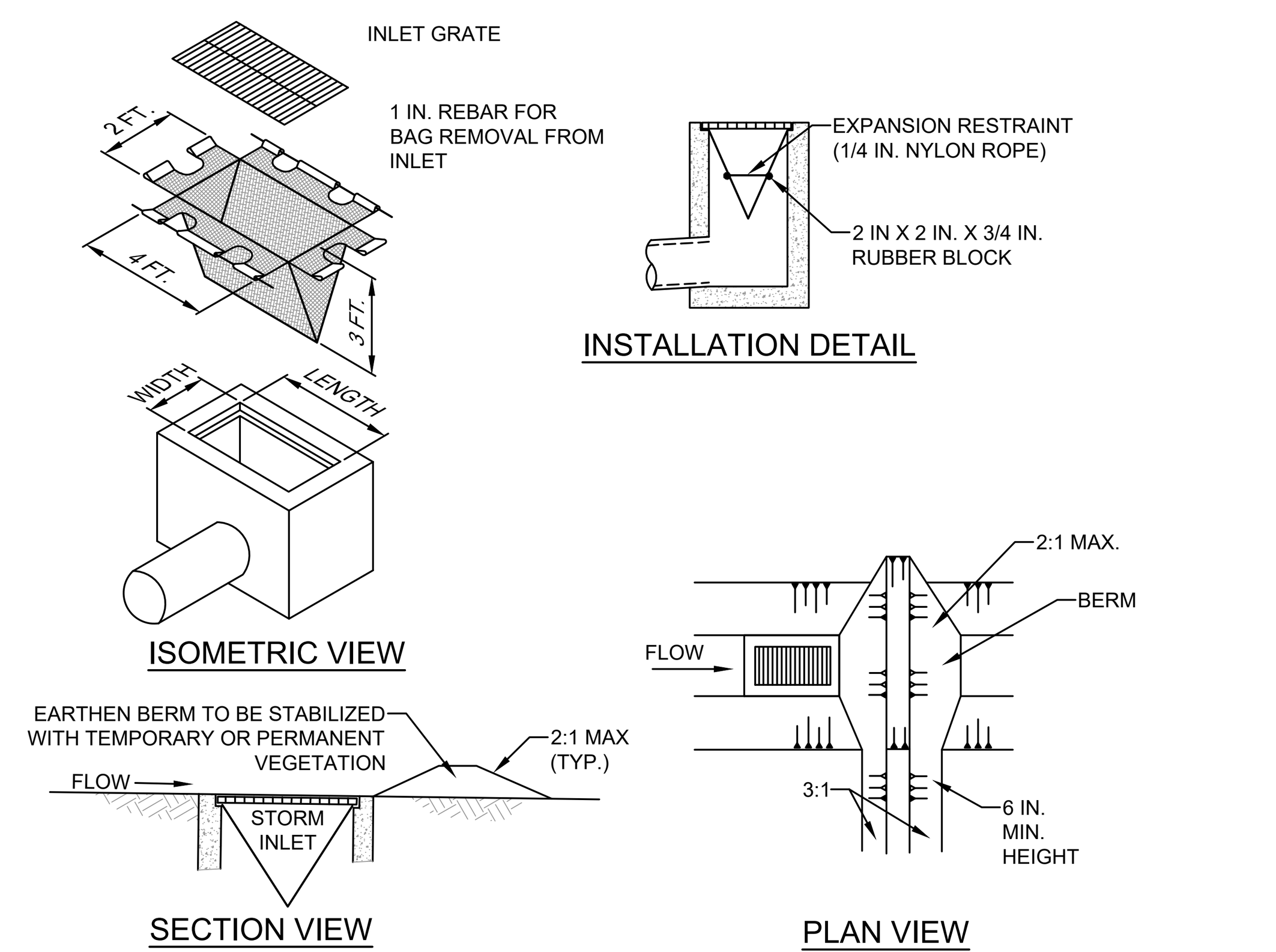
COMPOST SOCK WASHOUT
WHEREVER COMPOST SOCK WASHOUTS ARE USED, A SUITABLE IMPERVIOUS GEOMEMBRANE SHOULD BE PLACED AT THE LOCATION OF THE WASHOUT. COMPOST SOCKS SHOULD BE STAKED IN THE MANNER RECOMMENDED BY THE MANUFACTURER AROUND PERIMETER OF THE GEOMEMBRANE SO AS TO FORM A RING WITH THE ENDS OF THE SOCK LOCATED AT THE UPSLOPE CORNER (FIGURE 3.18). CARE SHOULD BE TAKEN TO ENSURE CONTINUOUS CONTACT OF THE SOCK WITH THE GEOMEMBRANE AT ALL LOCATIONS. WHERE NECESSARY, SOCKS MAY BE STACKED AND STAKED SO AS TO FORM A TRIANGULAR CROSS-SECTION.

SELF-INSTALLED WASHOUTS
THESE TYPES OF WASHOUTS SHOULD BE EXCAVATED BELOW GRADE TO PREVENT RUNOFF OF THE WASH WATER AND MINIMIZE THE POTENTIAL FOR BREACHING. THEY SHOULD BE SIZED TO HANDLE SOLIDS, WASH WATER, AND RAINFALL. A GOOD RULE OF THUMB IS THAT 7 GALLONS OF WASH WATER ARE REQUIRED TO WASH ONE TRUCK CHUTE AND 50 GALLONS FOR THE HOPPER OF A CONCRETE PUMP TRUCK.
FOR LARGER SITES, A BELOW-GRADE WASHOUT SHOULD BE A MINIMUM OF 10 FEET WIDE AND PROVIDE AT LEAST 12 INCHES OF FREEBOARD ABOVE THE LIQUID AND SOLID WASTE ANTICIPATED BETWEEN CLEANOUT INTERVALS. THE PIT SHOULD BE LINED WITH PLASTIC SHEETING OF AT LEAST 10-MIL THICKNESS (WITH NO HOLES OR TEARS) TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND.

MAINTENANCE
ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.
ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY.
PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

TYPICAL COMPOST SOCK WASHOUT INSTALLATION

NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

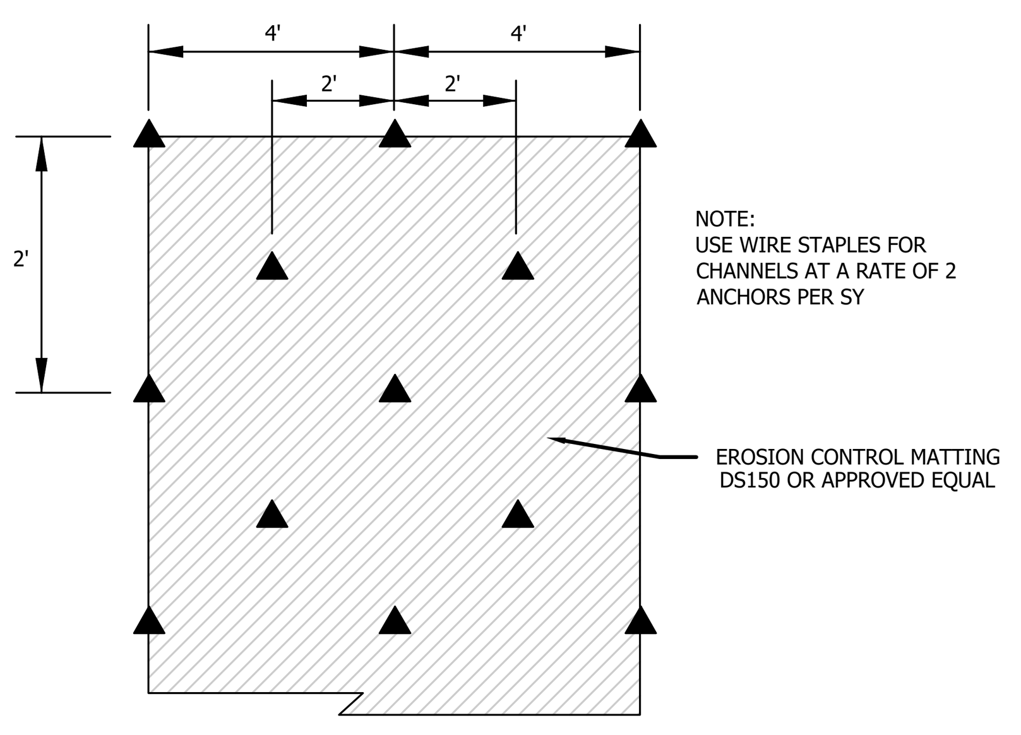
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

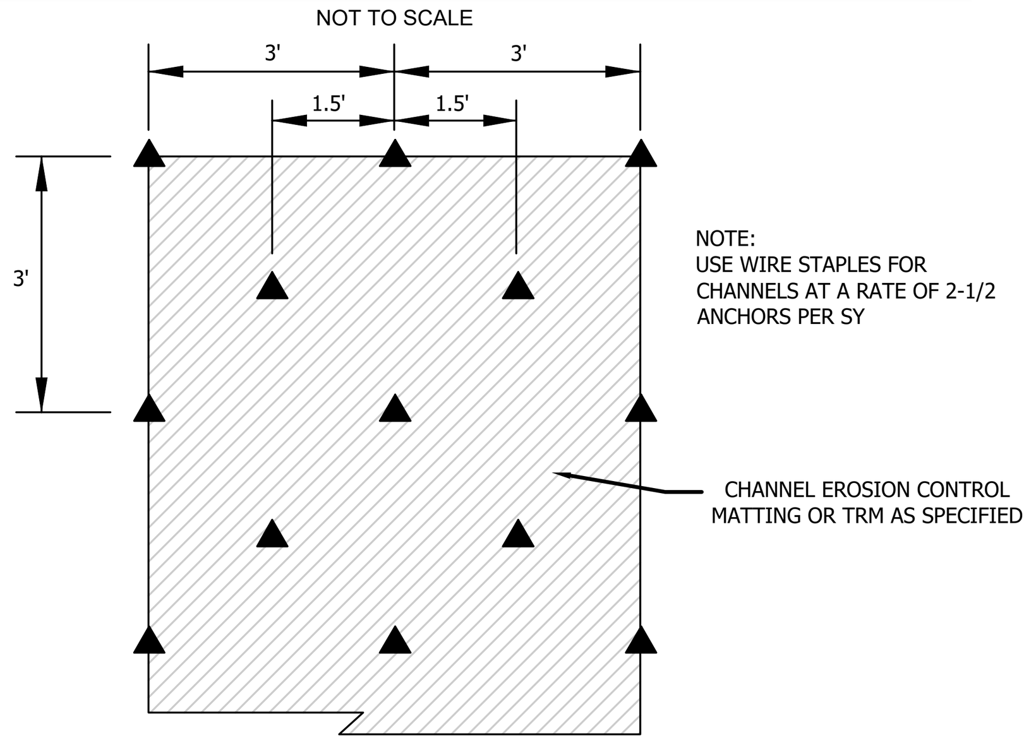
STANDARD CONSTRUCTION DETAIL #4-16
FILTER BAG INLET PROTECTION - TYPE M INLET

NOT TO SCALE



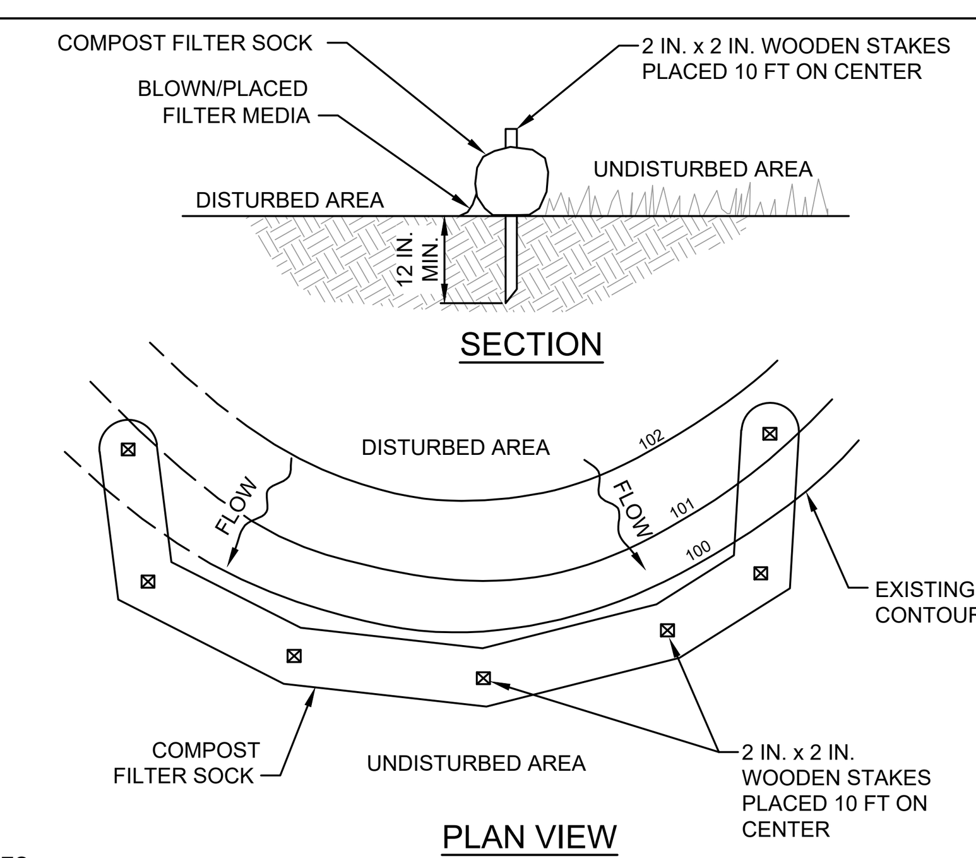
STAPLE PATTERN DETAIL - SLOPES

NOT TO SCALE



STAPLE PATTERN DETAIL - CHANNELS

NOT TO SCALE



NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURERS SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

COMPOST FILTER SOCK

NOT TO SCALE

TABLE 4.1
Compost Sock Fabric Minimum Specifications

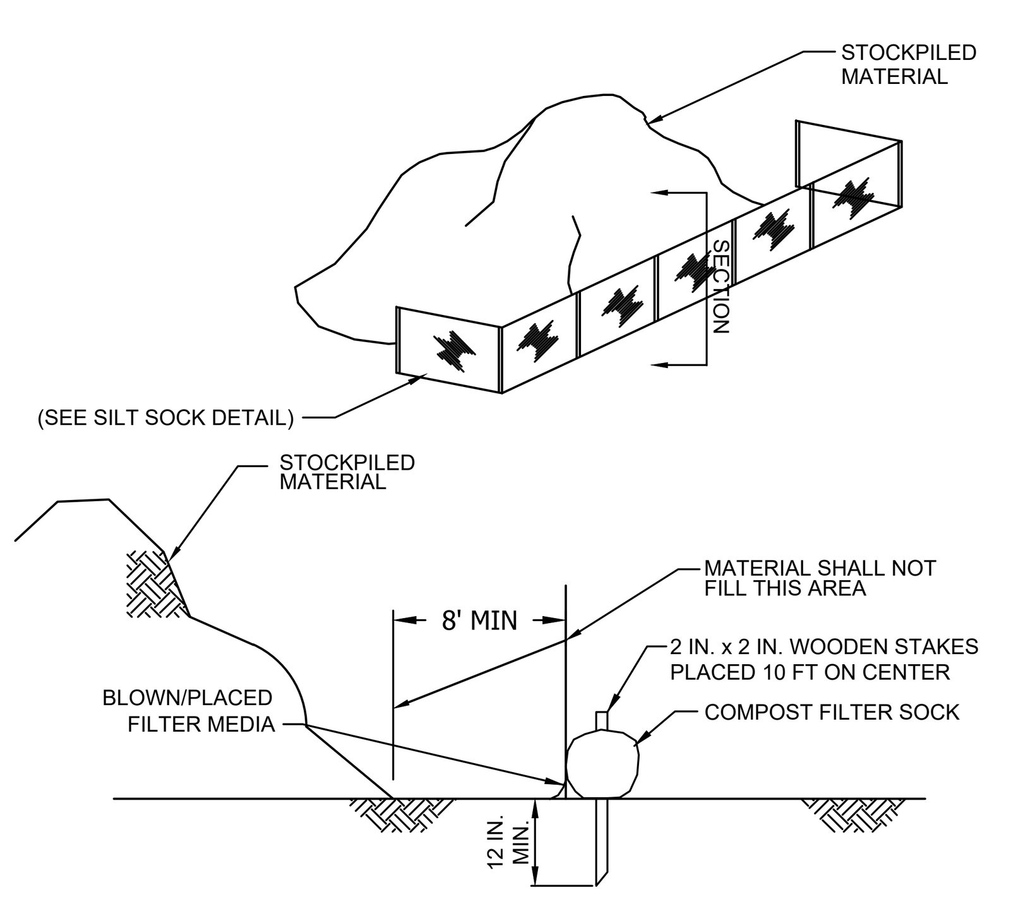
Material Type	3 Mil HDPE	5 Mil HDPE	5 Mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-Degradeable	Photo-Degradeable	Bio-Degradeable	Photo-Degradeable	Photo-Degradeable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength	317 lbs. (8") 581 lbs. (12") 803 lbs. (18")	528 lbs. (8") 969 lbs. (12") 1339 lbs. (18")	528 lbs. (8") 969 lbs. (12") 1339 lbs. (18")	982 lbs. (8") 1669 lbs. (12") 2487 lbs. (18")	1800 lbs. (8") 3141 lbs. (12") 4712 lbs. (18")
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months-2 years	9 months-3 years	6-12 months	1-4 years	2-5 years

Two-ply Systems	
Inner Containment Netting	HDPE biaxial net Continuously wound Fusion-welded junctures 3/4" X 3/4" Max. aperture size
Outer Filtration Mesh	Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch) 3/16" Max. aperture size

Sock fabrics composed of burlap may be used on projects lasting 6 months or less.

TABLE 4.2
Compost Standards

Organic Matter Content	25% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.5
Moisture Content	30% - 60%
Particle Size	30% - 50% PASS THROUGH 3/8" SIEVE
Soluble Salt Concentration	5.0 dS/m (mmhos/cm) Maximum



STOCKPILE
1. ALL STRIPPED TOPSOIL AND EXCAVATED EARTHEN MATERIAL FROM THE PROJECT SITE SHALL BE PROPERLY STOCKPILED IN ACCORDANCE WITH THE "STOCKPILE CONTROL" DETAIL. MATERIAL FOUND TO BE UNSUITABLE FOR SUBSEQUENT USE OR IN EXCESS OF THE QUALITY REQUIRED SHALL BE DISPOSED OF. THE LOCATION, METHOD OF DISPOSAL, AND MEANS OF TRANSPORT SHALL BE IN ACCORDANCE WITH STATE AND LOCAL LAWS.

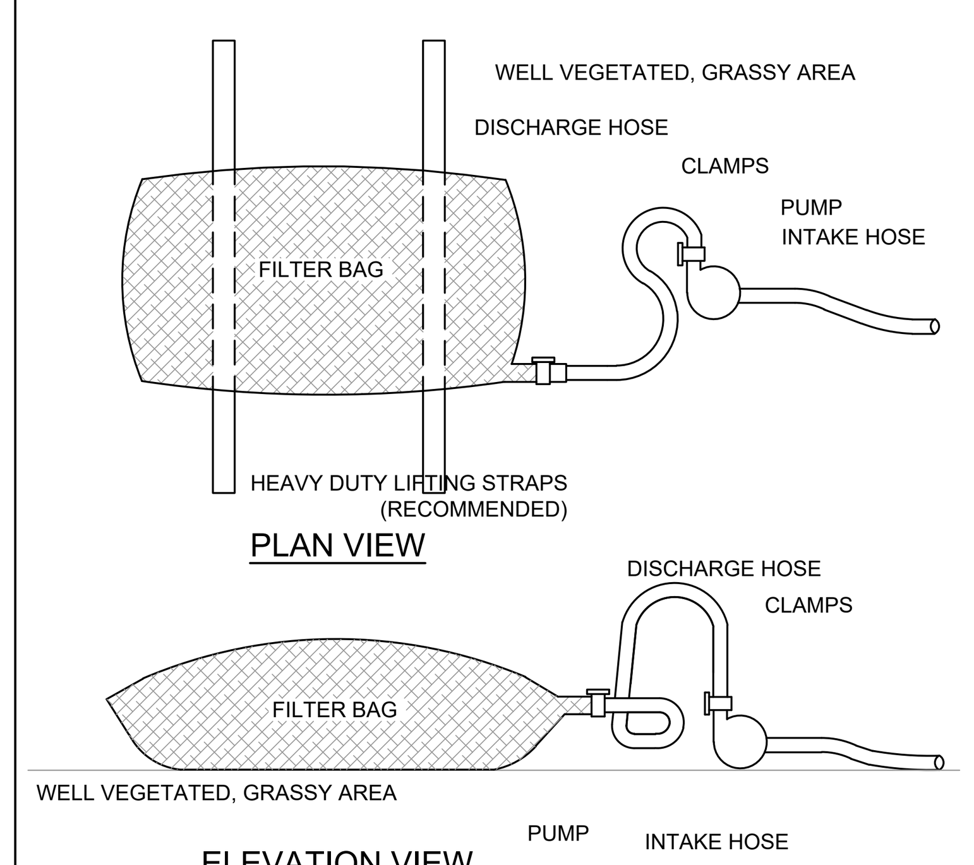
2. THE CONTRACTOR MUST DEVELOP, AND HAVE APPROVED , A SEPARATE EROSION AND SEDIMENTATION CONTROL PLAN FOR EACH SPOIL, BORROW, OR OTHER WORK AREA NOT DETAILED IN THE APPROVED PLAN, WHETHER LOCATED WITHIN OR OUTSIDE OF THE CONSTRUCTION LIMITS.

3. ALL SOIL THAT IS TO BE STOCKPILED FOR A PERIOD OF GREATER THAN 20 CALENDAR DAYS SHALL BE TEMPORARILY STABILIZED.

4. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET, STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

STOCKPILE CONTROL DETAIL

NOT TO SCALE



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.
BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.
THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.
FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG

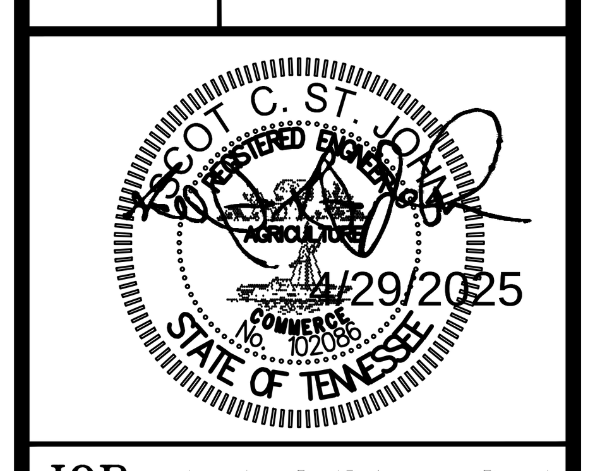
NOT TO SCALE

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

DETAILS

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK



JOB 1107-01

SHEET C6.03

SEEDING SCHEDULE:
THE FOLLOWING SEEDING SCHEDULE SHALL BE USED UNLESS OTHERWISE NOTED.

TEMPORARY COVER FOR EROSION CONTROL:
USE THE FOLLOWING TABLE WHERE SEEDING / SODDING IS TO BE DELAYED. SEE TABLES 11.2 AND 11.6 FOR LIME, FERTILIZER, AND MULCH APPLICATION RATES.

SEASON	SPECIES	RATE (LB./ACRE)
SUMMER (JUNE 16 - AUGUST 15)	ANNUAL RYEGRASS	40
FALL (AUGUST 16 - NOVEMBER 1)	ANNUAL RYEGRASS OR WINTER RYE	40 168

PERMANENT COVER FOR STABILIZATION:
ALL DISTURBED AREAS TO BE PREPARED AND SEEDED WITH THE FOLLOWING SPECIES AT THE NOTED SEEDING RATE FOLLOWING FINAL GRADING. SEE TABLES 11.2 AND 11.6 FOR LIME, FERTILIZER, AND MULCH APPLICATION RATES.

LAWN SEEDING SPECIFICATIONS

SEASON	SPECIES	RATE (LB./1000 SF)	SOD COMPOSITION
SPRING (MARCH 15 - MAY 15) FALL (AUGUST 20 - OCTOBER 1)	KENTUCKY BLUEGRASS (POA PRATENSIS)	1	50%
	TURF-TYPE PERENNIAL RYEGRASS (LOLIUM PERENNE)	3.5	20%
	TURF-TYPE TALL FESCUE (FESTUCA ARUNDINACEA)	3.5	30%

TOPSOIL APPLICATION SPECIFICATIONS:

1. GRADED AREAS SHOULD BE SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREAS AND TO PROVIDE A ROUGHENED SURFACE TO PREVENT TOPSOIL FROM SLIDING DOWN SLOPE.
2. TOPSOIL SHOULD BE UNIFORMLY DISTRIBUTED ACROSS THE DISTURBED AREA TO A DEPTH OF 4 TO 8 INCHES MINIMUM--2 INCHES ON FILL OUTSLOPES. SPREADING SHOULD BE DONE IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL PREPARATION OR TILLAGE. IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOIL PLACEMENT SHOULD BE CORRECTED IN ORDER TO PREVENT FORMATION OF DEPRESSIONS UNLESS SUCH DEPRESSIONS ARE PART OF THE PCSM PLAN.
3. TOPSOIL SHOULD NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION. COMPACTED SOILS SHOULD BE SCARIFIED 6 TO 12 INCHES ALONG CONTOUR WHEREVER POSSIBLE PRIOR TO SEEDING.

TABLE 11.1
Cubic Yards of Topsoil Required for Application to Various Depths

Depth (in.)	Per 1,000 Square Feet	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806
7	21.7	940
8	24.8	1,074

TABLE 11.6
MULCH APPLICATION RATE

MULCH TYPE	APPLICATION RATE (MIN.) PER ACRE	PER 1,000 S.F.	PER 1,000 S.Y.	NOTES
STRAW	3 TONS	140 LB.	1,240 LB.	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
HAY	3 TONS	140 LB.	1,240 LB.	TIMOTHY, MIXED CLOVER AND TIMOTHY OR OTHER NATIVE FORAGE GRASSES
WOOD CHIPS	4-6 TONS	185-275 LB.	1,650 - 2,500 LB.	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDROMULCH	1 TON	47 LB.	415 LB.	SHREDDED PAPER HYDROMULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER HYDROMULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED.

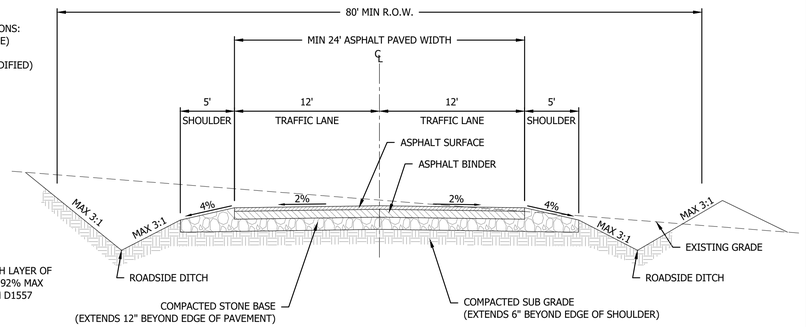
SEE SEEDED TEMPORARY & PERMANENT MULCH

TABLE 11.2
SOIL AMENDMENT APPLICATION RATE EQUIVALENTS

SOIL AMENDMENT	SOIL AMENDMENT PERMANENT SEEDING APPLICATION RATE PER ACRE	PER 1,000 S.F.	PER 1,000 S.Y.	NOTES
AGRICULTURAL LIME	6 TONS	240 LB.	2,480 LB.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS
10-20-20 FERTILIZER	1,000 LB.	25 LB.	210 LB.	OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS
	SOIL AMENDMENT TEMPORARY SEEDING APPLICATION RATE			
AGRICULTURAL LIME	1 TON	40 LB.	410 LB.	TYPICALLY NOT REQUIRED FOR TOPSOIL STOCKPILES
10-10-10 FERTILIZER	500 LB.	12.5 LB.	100 LB.	TYPICALLY NOT REQUIRED FOR TOPSOIL STOCKPILES

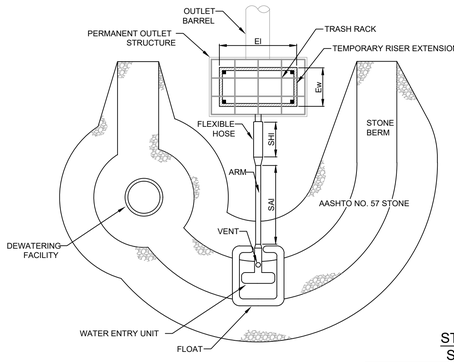
ADAPTED FROM PENN STATE, "EROSION CONTROL AND CONSERVATION PLANTINGS ON NONCROPLAND"
NOTE: A COMPOST BLANKET WHICH MEETS THE STANDARDS OF THIS CHAPTER MAY BE SUBSTITUTED FOR THE SOIL AMENDMENTS SHOWN IN TABLE 11.2.

PAVEMENT SECTION DETAIL SPECIFICATIONS:
1. 1.5" ASPHALT WEARING SURFACE (411 E)
2. TACK COAT
3. 4.5" (2.5"+2") ASPHALT BINDER (B-MODIFIED)
4. 10" STONE BASE



SUB-GRADE COMPACTION:
COMPACT TOP 12" OF SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL (8" LIFTS) AT 92% MAX DRY DENSITY IN ACCORDANCE WITH ASTM D1557

MANCHESTER INDUSTRIAL PARKWAY - TYPICAL SECTION
N.T.S.



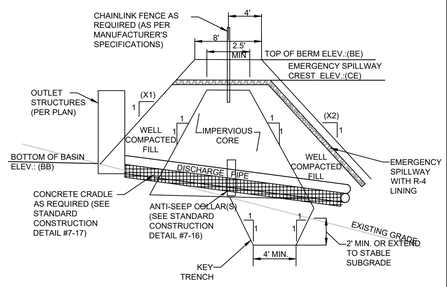
PLAN VIEW

NOTES:

NO GUIDE RAILS SHALL BE REQUIRED FOR THIS INSTALLATION.

THIS DETAIL SHALL BE USED IN CONJUNCTION WITH STANDARD CONSTRUCTION DETAILS #7-2 AND #7-4.

STANDARD CONSTRUCTION DETAIL #7-3
SKIMMER WITH STONE LANDING BERM
NOT TO SCALE

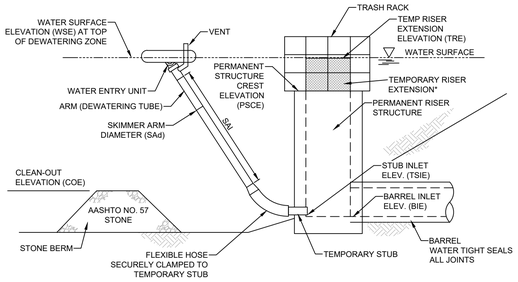


BASIN #	(BB) (FT.)	(BE) (FT.)	(CE) (FT.)	(X1) (FT.)	(X2) (FT.)
1	1086.5	1093.5	1091.5	3	3
2	1086.0	1092.0	1090.5	3	3

BASIN DATA

NOTES:
1. TOP OF BERM SHALL BE CONSTRUCTED AT LEAST SIX (6") ABOVE THE DESIGN ELEVATION TO ALLOW FOR SETTLEMENT OF THE EMBANKMENT.
2. THE CORE TOP SHALL BE 6" BELOW THE EMERGENCY SPILLWAY ELEVATION AND CONTINUE THE ENTIRE LENGTH OF BERM.
3. THE CORE AND KEY TRENCH SHALL CONSIST OF COMPACTED CLAYEY SOIL; UNIFIED CLASS ML, CL, CL-ML, SC, OR SC-SM INSTALLED AT A MOISTURE RANGE OF -1% TO 3% OF OPTIMUM MOISTURE PER ASTM D-698 AND COMPACTED TO AT LEAST 95% OF STANDARD MAX. DRY DENSITY AS PER ASTM-D698.
4. THE BERM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
5. EMBANKMENT COMPACTION SHALL BE 95% OF STANDARD PROCTOR AS PER ASTM-D698.
6. THE KEY TRENCH SHOULD EXTEND UP BOTH ABUTMENTS TO THE RISER CREST ELEVATION. COMPACTION REQUIREMENT SHOULD BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHOULD BE DEWATERED DURING BACKFILLING AND COMPACTION OPERATIONS.
7. A KEY TRENCH MAY NOT BE REQUIRED WHEREVER IT CAN BE SHOWN THAT ANOTHER DESIGN FEATURE, SUCH AS THE USE OF AN IMPERMEABLE LINER, ACCOMPLISHES THE SAME PURPOSE.

BASIN BERM CROSS-SECTION DETAIL
NOT TO SCALE



SECTION VIEW

BASIN NO.	SKIMMER ORIFICE DIA. (IN)	ORIFICE HEAD (FT)	ARM DIA. SAd (IN)	ARM LENGTH SAI (FT)	ARM MAT'L	FLEXIBLE HOSE DIA. (IN)	FLEXIBLE HOSE LENGTH (IN)	FLEXIBLE HOSE MAT'L
1	4	3.50	4	8.0	PVC	4	24	PVC
2	5	4.00	6	8.0	PVC	5	24	PVC

NOTES:

ALL ORIFICES ON PERMANENT RISER BELOW TEMPORARY RISER EXTENSION SHALL HAVE WATER-TIGHT TEMPORARY SEALS PROVIDED. TEMPORARY STUB INVERT ELEVATION SHALL BE SET AT OR BELOW SEDIMENT CLEAN-OUT ELEVATION.

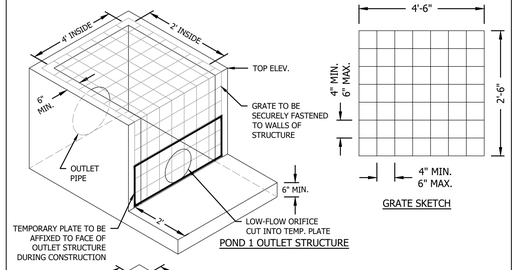
A ROPE SHALL BE ATTACHED TO THE SKIMMER ARM TO FACILITATE ACCESS TO THE SKIMMER ONCE INSTALLED.

SKIMMER SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ANY MALFUNCTIONING SKIMMER SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.

ICE OR SEDIMENT BUILDUP AROUND THE PRINCIPAL SPILLWAY SHALL BE REMOVED SO AS TO ALLOW THE SKIMMER TO RESPOND TO FLUCTUATING WATER ELEVATIONS.

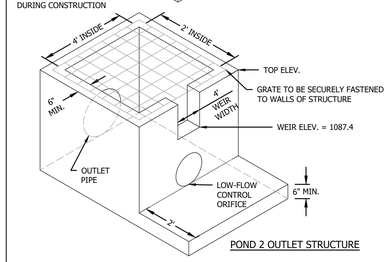
SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE LEVEL MARKED ON THE SEDIMENT CLEAN-OUT STAKE OR THE TOP OF THE STONE BERM. SEE STANDARD CONSTRUCTION DETAIL #7-3 FOR CONFIGURATION OF STONE BERM.

STANDARD CONSTRUCTION DETAIL #7-2
SKIMMER ATTACHED TO PERMANENT RISER
NOT TO SCALE



GRATE SKETCH

POND 1 OUTLET STRUCTURE



POND 2 OUTLET STRUCTURE

POND	LOW-FLOW CONTROL ORIFICE INVERT ELEV.	LOW-FLOW CONTROL ORIFICE DIA.	OUTLET PIPE INVERT ELEV.	OUTLET PIPE DIA.	TOP ELEV.	WEIR WIDTH	WEIR ELEV.
1	1086.5	4	SEE PLAN	15"	1090.5	N/A	N/A
2	1086.5	5	SEE PLAN	24"	1089.0	N/A	N/A

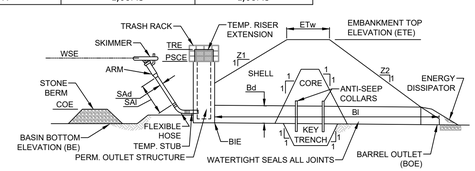
NOTE:

1. THE PRECAST MANUFACTURER SHALL DETERMINE REINFORCEMENT AND CONCRETE THICKNESS OF WALLS AND BOTTOM SLAB TO MEET STRENGTH REQUIREMENTS AND PREVENT FLOATATION.
2. AN OPEN GRATE SHALL BE CONSTRUCTED ON THE TOP OF THE OUTLET STRUCTURE WITH MAXIMUM AND MINIMUM CLEAR OPENING DIMENSIONS OF 6"x6" AND 4"x4" RESPECTIVELY AND SHALL BE CAPABLE OF SUPPORTING A 300 POUND POINT LOAD AT ANY POINT. THE GRATE SHALL BE SECURELY FASTENED TO THE TOP OR OUTSIDE OF THE OUTLET STRUCTURE WALLS.

SEDIMENT BASIN/DETENTION POND OUTLET STRUCTURE
N.T.S.

SEDIMENT BASIN DESIGN DATA		
SEDIMENT BASIN NO.	1	2
CONTRIBUTING DRAINAGE AREA	21.43 ACRES	50.22 ACRES
STORAGE PROVIDED / REQ'D	194,402 CF / 77,534 CF	277,924 CF / 181,696 CF
WET STORAGE PROVIDED / REQ'D	66,775 CF / 38,767 CF	109,428 CF / 90,848 CF
DRY STORAGE PROVIDED / REQ'D	127,627 CF / 38,767 CF	168,506 CF / 90,848 CF
FOREBAY STORAGE (25% DRY STORAGE)	8,548 CF	22,712 CF
TOP OF BERM ELEV.	1,093.5	1,091.5
EMERGENCY SPILLWAY ELEV.	1,091.5	1,091
BASIN BOTTOM ELEV.	1,086.0	1,086.0
OUTLET STRUCTURE CREST ELEV.	1,089	1,089
OUTLET STRUCTURE IE	1,088.0	1,088.0
OUTLET PIPE IE(OUT)	1,086.5	1,086.0
OUTLET PIPE SIZE	15" (2)	24"
DRY STORAGE WSE	1,088.5	1,088.5
WET STORAGE WSE / SKIMMER REST TOP ELEV.	1,087.5	1,087.5
FAIRCLOTH SKIMMER SIZE	4"	5"
SEDIMENT CLEANOUT ELEV.	1,087.5	1,087.5

STORAGE REQ'D = 134 CY/AC
WET/DRY STORAGE REQ'D = 67 CY/AC = 1,809 CF/AC
FOREBAY STORAGE REQ'D = 25% OF DRY STORAGE



BASIN NO.	Z1 (FT)	Z2 (FT)	TEMP RISER EXT. ELEV TRE (FT)	EMBANKMENT TOP ELEV ETE (FT)	EMBANKMENT TOP WIDTH ETw (FT)	EMBANKMENT KEY TRENCH DEPTH (FT)	EMBANKMENT KEY TRENCH WIDTH (FT)	CLEAN OUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
1	3	3	-	1093.5	8	2	4	1087.5	1081.5
2	3	3	-	1092.0	8	2	4	1087.5	1081.0

NOTES:

SEDIMENT BASINS, INCLUDING ALL APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.

AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. IN ORDER TO FACILITATE MAINTENANCE AND RESTORATION, THE POOL AREA SHALL BE CLEARED OF ALL BRUSH, TREES, AND OBJECTIONABLE MATERIAL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6 TO 9 IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS.

UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED, MULCHED, BLANKETED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.

INSPECT ALL SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. PROVIDE ACCESS FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES. A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.

BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS SHALL BE INSPECTED FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY.

ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #7-16 MAY BE USED TO DEWATER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL BE ADDED AS NECESSARY.

STANDARD CONSTRUCTION DETAIL #7-4
SEDIMENT BASIN EMBANKMENT AND SPILLWAY DETAILS - SKIMMER
NOT TO SCALE

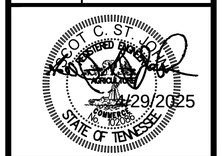
NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

DETAILS

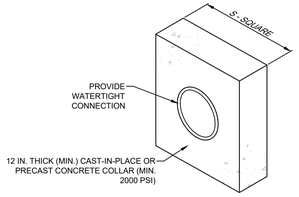
LITTLE LEAF FARMS

MANCHESTER INDUSTRIAL PARK



JOB 1107-01

SHEET C6.04



BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
1	15 (2)	45	2	25	N/A
2	24	54	1	60	N/A

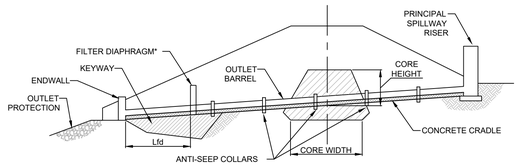
NOTES:

ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.

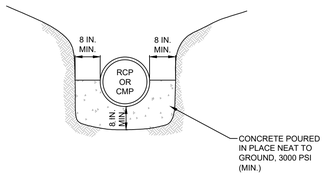
COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

STANDARD CONSTRUCTION DETAIL #7-16
CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS

NOT TO SCALE



EMBANKMENT ALONG PRINCIPAL SPILLWAY



CROSS-SECTION AT OUTLET BARREL

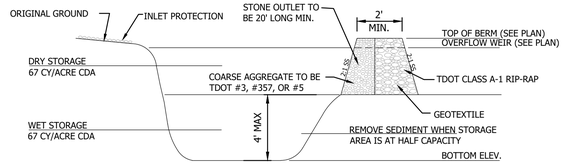
NOTES:

A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.
ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.
FILTER DIAPHRAGM LOCATION (Lfd) SHALL BE AS SHOWN IN FIGURE 7.8 OF THE PA DEP EROSION CONTROL MANUAL.

STANDARD CONSTRUCTION DETAIL #7-17
CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL

NOT TO SCALE

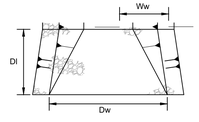
SEDIMENT TRAPS ARE TO BE EXCAVATED PRIOR TO THE CLEARING AND GRADING WORK. THE DRY STORAGE AREA WILL PROVIDE EXTENDED SETTLING TIME DURING THE 2-YEAR AND LARGER STORM EVENTS. THE TRAP SHALL BE REMOVED ONCE THE CONTRIBUTING DRAINAGE AREA ABOVE THE TRAP ARE STABILIZED.



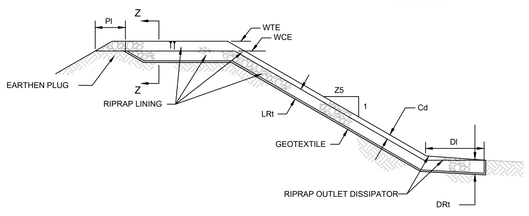
SEDIMENT TRAP SCHEDULE							
TRAP NO.	CONTRIBUTING DRAINAGE AREA (AC)	REQ'D WET/DRY STORAGE (CY [CF])	WET STORAGE SIZE (D'xL'xW')	PROVIDED WET STORAGE (CF)	WET STORAGE BOTTOM ELEV.	DRY STORAGE SIZE (D'xL'xW')	PROVIDED WET/DRY STORAGE (CF)
3	4.4	294.8 [7,960]	2'x200'x20'	8,000	1,092	2'x212'x32'	13,568
4	2.8	187.6 [5,066]	2'x106'x24'	5,100	1,098	2'x118'x36'	8,148
5	8.9	596.3 [16,100]	2.5'x175'x45'	19,688	1,094	2'x187'x57'	21,318

TEMPORARY SEDIMENT TRAP
N.T.S.

WEIR
SECTION Z-Z



RIPRAP OUTLET DISSIPATOR
PLAN VIEW



EMBANKMENT SECTION ALONG EMERGENCY SPILLWAY

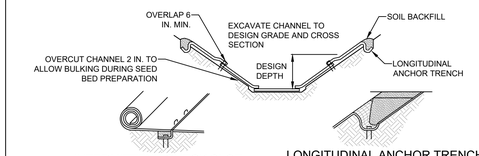
BASIN NO.	WEIR					LINING		CHANNEL		DISSIPATOR			
	Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	RIPRAP SIZE (R-_)	RIPRAP THICK. LRt (IN)	Z5 (FT)	DEPTH Cd (FT)	LENGTH Dl (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-_)	RIPRAP THICK. DRt (IN)
1	3	3	1093.5	1091.5	40	4	18	3.0	2.0	10	60	4	18
2	3	3	1092.0	1090.5	30	4	18	3.0	1.5	10	30	4	18

NOTES:

DIMENSION PI SHALL BE 5' MINIMUM.
DISPLACED RIPRAP WITHIN THE SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #7-12
SEDIMENT BASIN/DETENTION POND EMERGENCY SPILLWAY WITH RIPRAP LINING

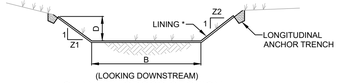
NOT TO SCALE



INTERMITTENT CHECK SLOT

LONGITUDINAL ANCHOR TRENCH

ISOMETRIC VIEW



(LOOKING DOWNSTREAM)

CHANNEL CROSS-SECTION

* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
1	ENTIRE LENGTH	8.0	3.0	26.0	3	3	S75
2	ENTIRE LENGTH	3.0	3.0	21.0	3	3	S75
3	ENTIRE LENGTH	4.0	3.0	22.0	3	3	S75

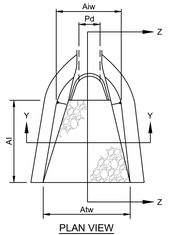
NOTES:
ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

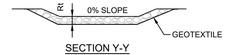
NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

STANDARD CONSTRUCTION DETAIL #6-1
VEGETATED CHANNEL

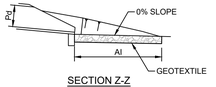
NOT TO SCALE



PLAN VIEW



SECTION Y-Y



SECTION Z-Z

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R-_	RIPRAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)
RA-1	30	4	18	16.0	7.50	23.50
RA-2	30	4	18	16.0	7.50	23.50
RA-3	36	4	18	20.0	9.0	29.00
RA-4	36	4	18	20.0	9.0	29.00
RA-5	24	4	18	12.0	6.0	18.00
RA-6	24	4	18	12.0	6.0	18.50
RA-7	18	4	18	8.0	4.50	12.50
RA-8	18	4	18	8.0	4.50	12.50
RA-9	36	4	18	20.0	9.0	29.00
RA-10	18	4	18	8.0	4.50	12.50
RA-11	24	4	18	12.0	6.0	18.00
RA-12	24	4	18	12.0	6.0	18.00
RA-13	18	4	18	8.0	4.50	12.50
RA-14	18	4	18	8.0	4.50	12.50
RA-15	15	4	18	8.0	4.00	12.00

NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #9-1
RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL

NOT TO SCALE

NO	DATE	REVISION	DR.	CHK.

St. John ENGINEERING, LLC
ENGINEERING • PLANNING •
ENVIRONMENTAL CONSULTING
923 JACKSON STREET
MANCHESTER, TN 37355
PHONE: (931) 728-2638 ~ FAX: (931) 728-6357
WWW.STJOHNENGINEERING.COM

DETAILS

LITTLE LEAF FARMS
MANCHESTER INDUSTRIAL PARK

JOB 1107-01

SHEET C6.05