Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility

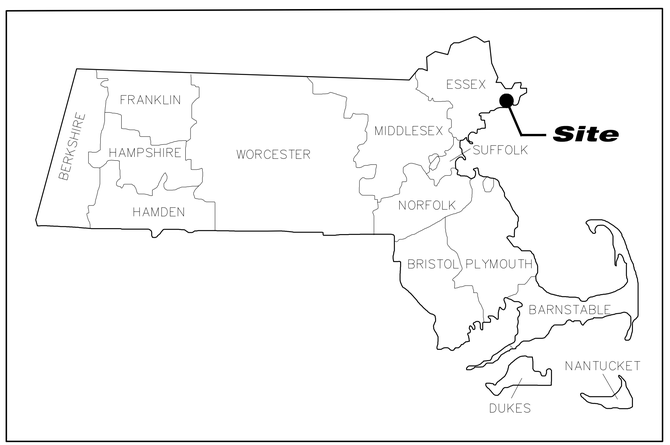
Design Drawings

Issued for Town Conservation Commission Review - March 2020

Issued for MassDEP Review - September 2020

Issued for Bidding - December 2020

Sheet Index



Locus Plan

Prepared For:

Town of Manchester-by-the-Sea
10 Central Street
Manchester-by-the-Sea, MA 01944

Prepared By:

CMA ENGINEERS

CIVIL/ENVIRONMENTAL/STRUCTURAL

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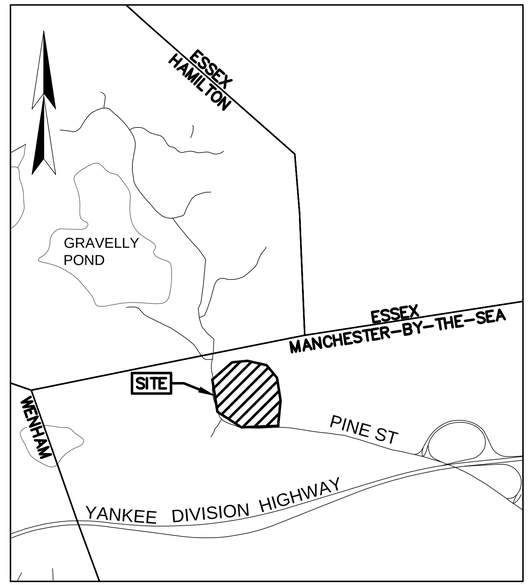
COMMONWEALTH OF MASSACHUSETTS
ADAM J. SANDAHL
CIVIL
No. 52038
REGISTERED PROFESSIONAL ENGINEER



LOCATION MAP (n.t.s.)

GORDON COLLEGE
255 GRAPEVINE RD
WENHAM, MA 01984
MAP 63 LOT 27

GORDON COLLEGE
255 GRAPEVINE RD
WENHAM, MA 01984
MAP 63 LOT 27

100-FOOT WETLAND SETBACK

30-FOOT NO DISTURB WETLAND SETBACK

50-FOOT NO-BUILD WETLAND SETBACK

LIMIT OF WETLANDS

LANDFILL ACCESS ROAD

LANDFILL GAS TRENCH (TYP)

LIMIT OF WORK

LANDFILL ACCESS ROAD

EXISTING GRAVEL PAD

TOWN OF MANCHESTER
10 CENTRAL STREET
MANCHESTER, MA
MAP 63 LOT 7

EXISTING MSW COMPACTOR

EXISTING GAS PROBE (LOCATION APPROX.)

LIMIT OF WORK

LIMIT OF EXISTING LANDFILL ANCHOR TRENCH

EXISTING SINGLE STREAM COMPACTOR

PINE STREET PAVEMENT/GRAVEL TRANSITION

TRANSFER STATION ENTRANCE

EXISTING LANDFILL VENT PIPE (TYP)

100-FOOT WETLAND SETBACK

EXISTING CELL TOWER AREA

50-FOOT NO-BUILD WETLAND SETBACK

30-FOOT NO DISTURB WETLAND SETBACK

TOWN OF MANCHESTER
10 CENTRAL ST
MANCHESTER, MA 01944
MAP 63 LOT 14

EXISTING GAS PROBE (LOCATION APPROX.)

MANCHESTER CONSERVATION TRUST
P.O. BOX 1486
MANCHESTER, MA 01944
MAP 63 LOT 19

LIMIT OF EXPOSED LEDGE OUTCROPPINGS

TOWN OF MANCHESTER WATER WORKS
10 CENTRAL ST
MANCHESTER, MA 01944
MAP 63 LOT 24

EXISTING GAS PROBE (LOCATION APPROX.)

LIMIT OF WETLANDS

MCCALL SW & C CHOATE JR.
INDIAN SHOE BROOK
MANCHESTER, MA 01944
MAP 63 LOT 16

EXISTING GAS PROBE (LOCATION APPROX.)

TOWN OF MANCHESTER
RIGHT-OF-WAY

TOWN OF MANCHESTER
RIGHT-OF-WAY

GORDON COLLEGE
255 GRAPEVINE RD
WENHAM, MA 01984
MAP 63 LOT 27

GORDON COLLEGE
255 GRAPEVINE RD
WENHAM, MA 01984
MAP 63 LOT 27

PINE ST

Notes:

1. FIELD SURVEY PERFORMED BY DOUCET SURVEY OF NEWMARKET, NEW HAMPSHIRE. IN SEPTEMBER 2018.
2. JURISDICTIONAL WETLANDS DELINEATED BY CRAIG WOOD OF ESS GROUP, INC. IN SEPTEMBER 2018.
3. HORIZONTAL DATUM BASED ON MASSACHUSETTS STATE PLANE COORDINATES, MAINLAND ZONE 2001) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
4. VERTICAL DATUM BASED ON APPROXIMATE NAVD88 (GEOID12A) (±.2') DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
5. LOCATION OF ANCHOR TRENCH AND GAS VENT TRENCHES DEPICTED ON THIS PLAN IS APPROXIMATE AND BASED ON CONSTRUCTION DRAWINGS TITLED "CONTRACT FOR LANDFILL CLOSURE AND TRANSFER STATION" PREPARED BY CAMP DRESSER & MCKEE INC DATED FEBRUARY 1999.

Legend:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPERTY LINE
- EXISTING ANCHOR TRENCH
- WETLAND LIMIT
- WETLAND SYMBOL
- WETLAND FLAG AND LABEL
- 50' WETLAND BUFFER
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING TREELINE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC (APPROX)
- EXISTING FENCE
- EXISTING EDGE OF GRAVEL
- EXISTING LIMIT OF LEDGE
- EXISTING LANDFILL VENT PIPE
- EXISTING LF GAS TRENCH

no.	revision	date	by
3	Issued for Bidding	DEC 20	AJS
2	Issued for MassDEP Review	SEP 20	AJS
1	Issued for Town Conservation Commission Review	MAR 20	AJS

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designed by: AJS
drawn by: AJS/NJM
approved by: AJS
date: MAR 2020
project no: 1127
file name: 1127 SP.dwg
scale: 30' 0 60' Scale: 1" = 30'

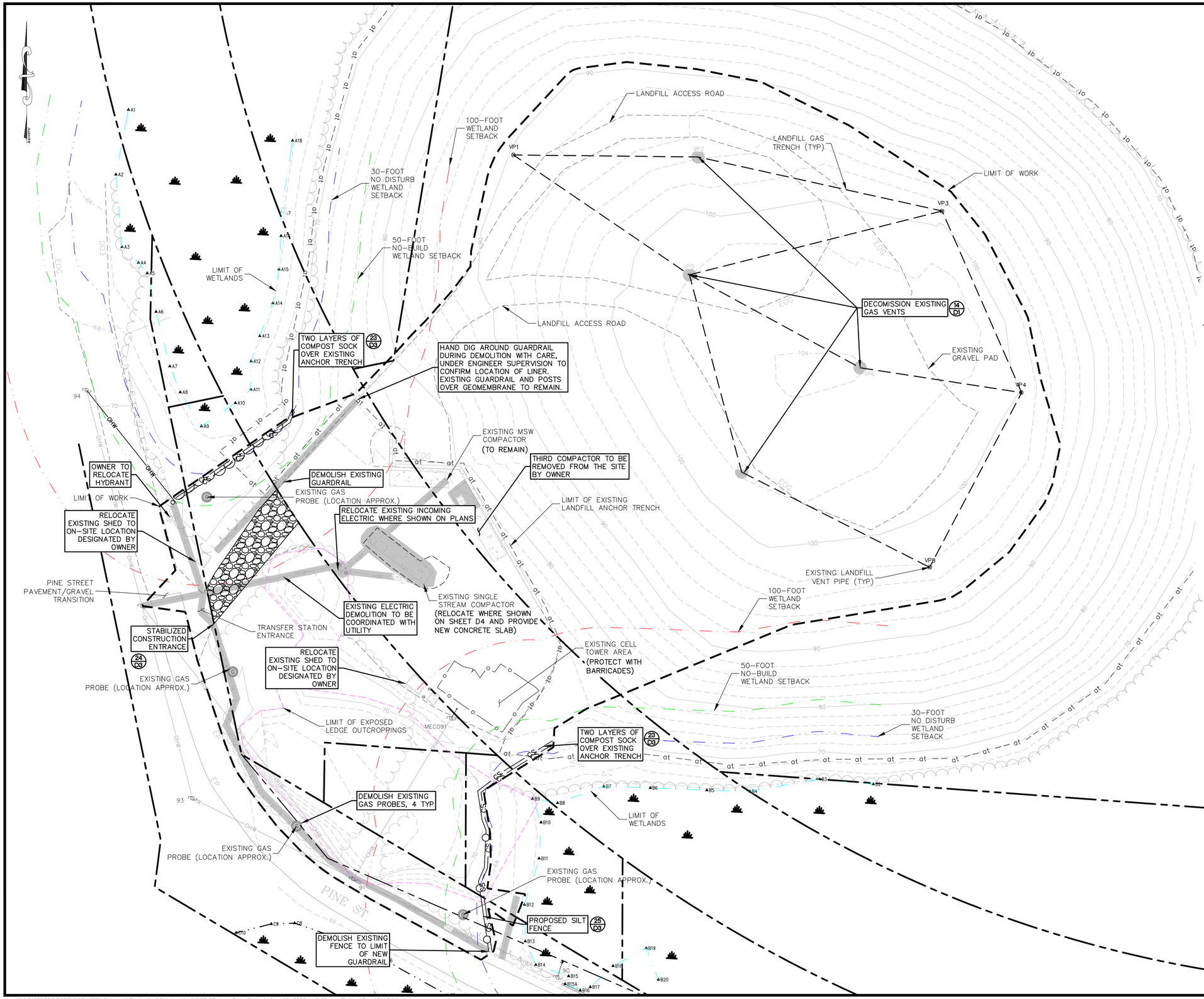
Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Existing Conditions Plan

drawing no. 2

sheet: 2 of 21

M:\CADD\PROJECTS\1127 MBTS Compost\Production\Construction\1127 SP.dwg Date Plotted: Nov 19, 2020 – 1:07pm Plotted By: ASANDAHL



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Proposed Construction Sequence:

1. ESTABLISH COVERAGE UNDER EPA'S CONSTRUCTION GENERAL PERMIT AND IMPLEMENT SWPPP/TRAINING.
2. SITE MOBILIZATION AND ESTABLISHMENT OF STAGING AREAS.
3. VERIFY AND ESTABLISH PROJECT SURVEY CONTROL.
4. INSTALL EROSION CONTROLS INCLUDING COMPOST SOCK, SILT FENCING, AND STONE CONSTRUCTION ENTRANCE.
5. INSTALL "WARNING" GEOTEXTILE FABRIC AND GRAVELS ON LANDFILL IN LOCATION SHOWN AND UTILIZE FOR STAGING AS NEEDED.
6. REMOVE TREES IN PROPOSED PROJECT AREA.
7. BLAST LEDGE IN WOODED AREA BETWEEN TRANSFER STATION AND PINE STREET TO REQUIRED GRADES.
8. CONSTRUCT STORMWATER POND AND SWALE AND EXPANSION OF NORTHERN AREA/GRAVELS.
9. TEMPORARILY RELOCATE TRANSFER STATION BINS TO THE TOP OF THE LANDFILL AND RELOCATE SINGLE STREAM COMPACTOR.
10. GRADE THE SITE.
11. INSTALL AERATION SYSTEM.
12. CONSTRUCT SLAB AND RETAINING WALLS.
13. CONSTRUCT FABRIC ROOF STRUCTURE.
14. CONSTRUCT BIOFILTER.
15. INSTALL BOLLARDS.
16. CLEAN AND RESTORE SITE.
17. DEMOBILIZE AND TERMINATE EPA CGP COVERAGE.
18. REMOVE EROSION CONTROL DEVICES WHEN SITE IS STABLE AS DETERMINED BY THE ENGINEER.

Legend:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPERTY LINE
- EXISTING ANCHOR TRENCH
- WETLAND LIMIT
- WETLAND SYMBOL
- WETLAND FLAG AND LABEL
- 50' WETLAND BUFFER
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING TREELINE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC (APPROX)
- EXISTING FENCE
- EXISTING EDGE OF GRAVEL
- EXISTING LIMIT OF LEDGE
- EXISTING LANDFILL VENT PIPE
- EXISTING LF GAS TRENCH
- PROPOSED SILT FENCE
- PROPOSED COMPOST SOCK
- PROPOSED STONE CONSTRUCTION ENTRANCE
- ITEMS FOR DEMOLITION

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3	Issued for Bidding	DEC 20	AJS
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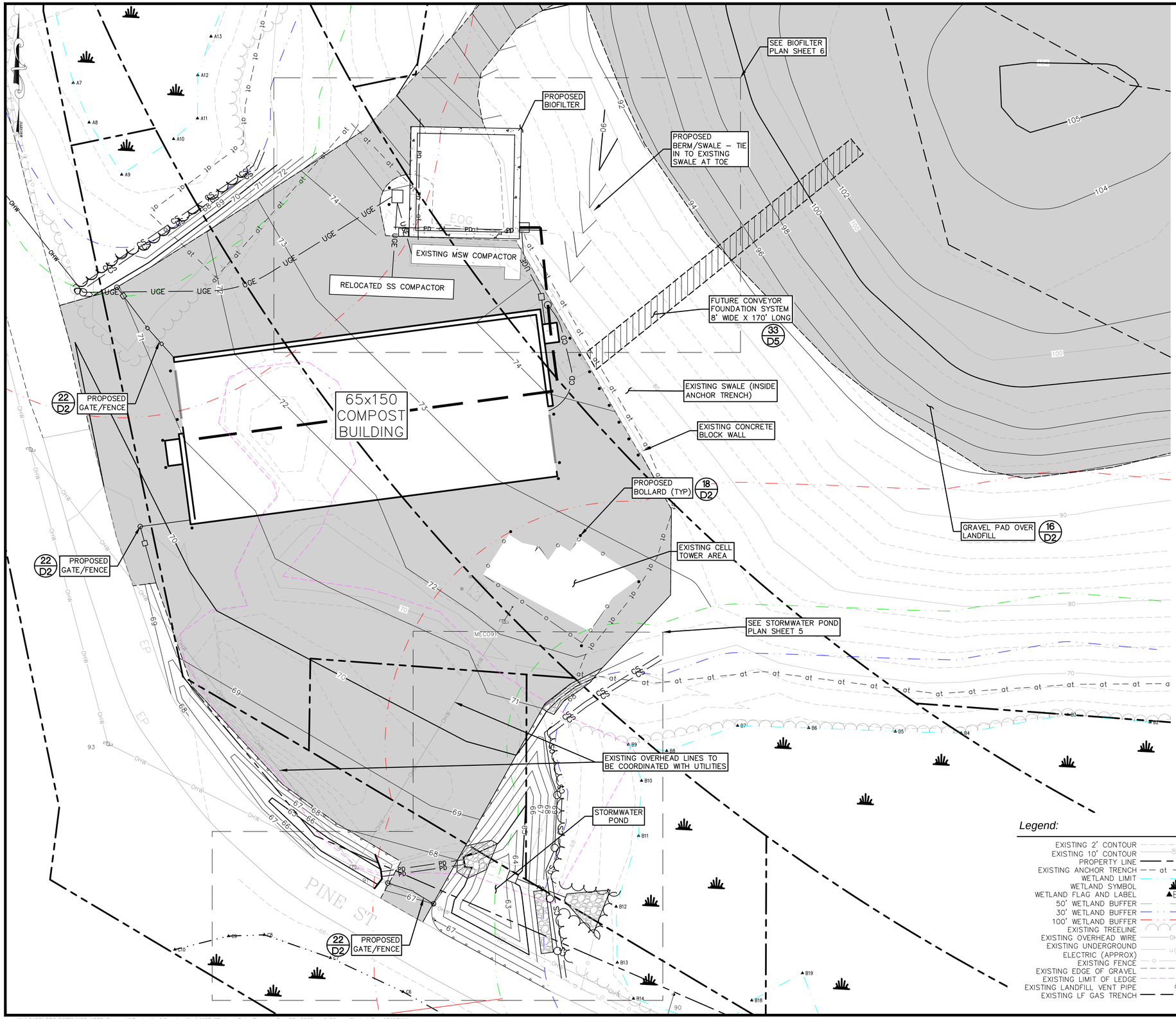
designed by: AJS
drawn by: AJS/NJM
approved by: AJS
date: MAR 2020
project no: 1127
file name: 1127 SP.dwg
scale: 30' 0 60' Scale: 1" = 30'

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Erosion, Demolition, and Construction Sequence Plan

drawing no. 3

sheet: 3 of 21



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6. VEHICLES AND EQUIPMENT DRIVING ON THE LANDFILL CAP (WITHIN THE ANCHOR TRENCH LIMITS SHOWN ON THE PLAN) SHALL BE LOW-GROUND PRESSURE, DEMONSTRATING LESS THAN 4.7 PSI ABOVE THE FML (GEOMEMBRANE). CLOSURE CONSTRUCTION DRAWINGS FOR THE PROJECT (REFERENCED IN NOTE 5, ABOVE) SHOW THE FML 20 INCHES BELOW GRADE UNDER VEGETATED CAP AREAS AND 24 INCHES UNDER GRAVEL CAP AREAS. GRAVELS ARE TO BE ADDED SUCH THAT THERE IS 3-FEET OF MATERIAL OVER THE GEOMEMBRANE OR AN ADDITIONAL 12 INCHES OVER EXISTING GRAVEL AREAS AND 16 INCHES OVER EXISTING VEGETATED AREAS. a 12-OZ NON-WOVEN GEOTEXTILE FABRIC IS TO BE INSTALLED UNDER NEW GRAVELS.
7. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR, PRIOR TO COMMENCING CONSTRUCTION, IS RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UTILITIES AND NOTIFYING THE APPROPRIATE UTILITY TO DEMONSTRATE THE ACTUAL FIELD LOCATION AND IDENTIFY POTENTIAL INTERFERENCE WITH THE PROPOSED WORK. CONTRACTOR SHALL NOTIFY DIG SAFE (811 OR 888-DIG-SAFE) PRIOR TO CONSTRUCTION.
8. THE CONTRACTOR SHALL COORDINATE WORK WITH TOWN TRANSFER STATION OPERATIONS AND MAINTAIN ACCESS TO FACILITIES TO REMAIN AT THE SITE DURING CONSTRUCTION. CONTRACTOR SHALL PERFORM UTILITY WORK WHICH MAY AFFECT TRAFFIC DURING OFF-HOURS. THE TRANSFER STATION IS OPEN TO THE PUBLIC ON WEDNESDAY FROM 7:30 A.M. TO 3:00 P.M. AND SATURDAY FROM 10:00 A.M. TO 3:00 P.M.. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO TRANSFER STATION OPERATIONS DURING CONSTRUCTION AND SHALL MINIMIZE IMPACTS TO VEHICULAR ACCESS TO THE FACILITIES.
9. CONTRACTOR SHALL PROTECT EXISTING STRUCTURES IN THE WORK AREA AND SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE TO THE SATISFACTION OF THE TOWN OF MANCHESTER AND OTHER OWNERS AS APPLICABLE.
10. THE CONTRACTOR SHALL INSTALL ALL REQUIRED EROSION CONTROL DEVICES AND PREVENT TRANSPORTATION OF SEDIMENT BEYOND THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE SITE AGAINST EROSION AND IS RESPONSIBLE FOR REPAIRING AND/OR REPLACEMENT OF DAMAGED MATERIALS AND SOIL. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ADDITIONAL EROSION CONTROLS AS NEEDED, OR AS DIRECTED BY THE TOWN OR ENGINEER, DURING CONSTRUCTION TO RESTRICT MOVEMENT OF SEDIMENT OUT OF THE PROJECT AREA.
11. CONTRACTOR IS TO PROVIDE NEW ELECTRICAL SERVICES TO THE TRANSFER STATION AND COMPOST FACILITY IN CONFORMANCE WITH PROJECT SPECIFICATIONS AND TOWN AND ELECTRICAL CODE REQUIREMENTS.
12. THE EXISTING CELL TOWER AND ASSOCIATED OVERHEAD ELECTRIC, TRANSFORMER, AND FENCE IS TO BE PROTECTED AT ALL TIMES. CONTRACTOR SHALL COORDINATE WORK IN THE AREA OF THE CELL TOWER, INCLUDING BUT NOT LIMITED TO BLASTING OPERATIONS, WITH THE CELL TOWER OPERATORS, CROWN CASTLE (800) 788-7011.
13. THE PROJECT HAS RECEIVED PERMITS FROM THE MBTS CONSERVATION COMMISSION/MASSDEP FOR WETLAND BUFFER IMPACTS AND FROM MASSDEP-NERO FOR POST-CLOSURE USE OF THE LANDFILL. THESE PERMITS ARE PART OF THE CONTRACT DOCUMENTS AND MUST BE ADHERED TO THROUGHOUT THE PROJECT. CONTRACTOR IS REQUIRED TO OBTAIN OTHER REQUIRED PERMITTING, INCLUDING BUILDING AND ELECTRICAL PERMITS.
14. FINAL LOCATION OF THE POLES TO BE DETERMINED BY THE UTILITY.

Legend:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPERTY LINE
- EXISTING ANCHOR TRENCH
- WETLAND LIMIT
- WETLAND SYMBOL
- WETLAND FLAG AND LABEL
- 50' WETLAND BUFFER
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING TREELINE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC (APPROX)
- EXISTING FENCE
- EXISTING EDGE OF GRAVEL
- EXISTING LIMIT OF LEDGE
- EXISTING LANDFILL VENT PIPE
- EXISTING LF GAS TRENCH
- EXISTING STRUCTURE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED DRAIN PIPE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED OVERHEAD ELECTRIC
- PROPOSED UTILITY POLE
- PROPOSED TREELINE
- PROPOSED SILT FENCE
- PROPOSED COMPOST SOCK
- PROPOSED FENCELINE
- PROPOSED GRAVEL AREA

no.	revision	date	by
3	Issued for Bidding	DEC 20	AJS
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COMMONWEALTH OF MASSACHUSETTS — ADAM J. SANDAHL — CIVIL — No. 49599 — REGISTERED PROFESSIONAL ENGINEER

designed by: AJS
drawn by: AJS/NJM
approved by: AJS
date: MAR 2020
project no: 1127
file name: 1127 SP.dwg
scale: 1" = 20' (0, 20', 40')

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding
Proposed Site Plan

drawing no. 4

sheet: 4 of 21

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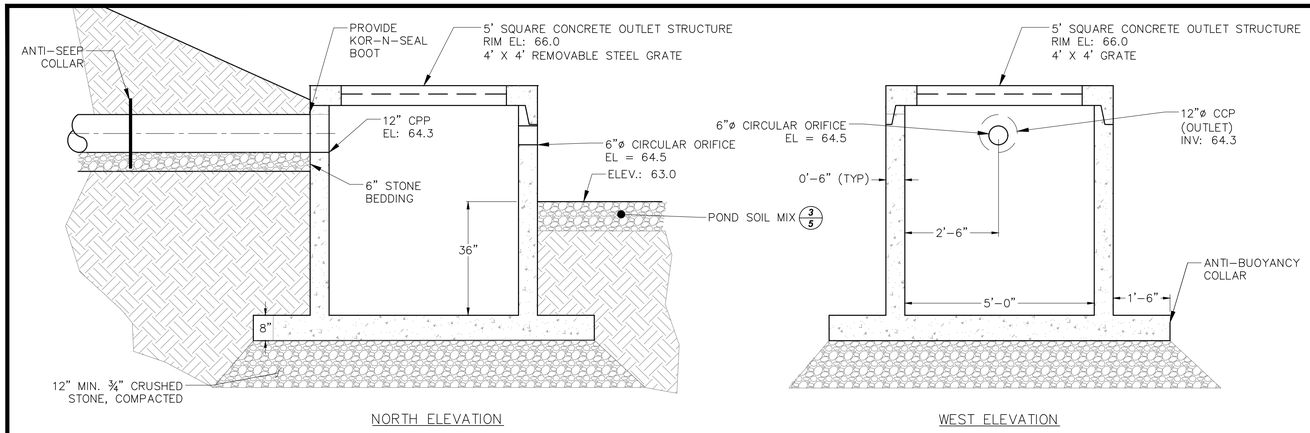
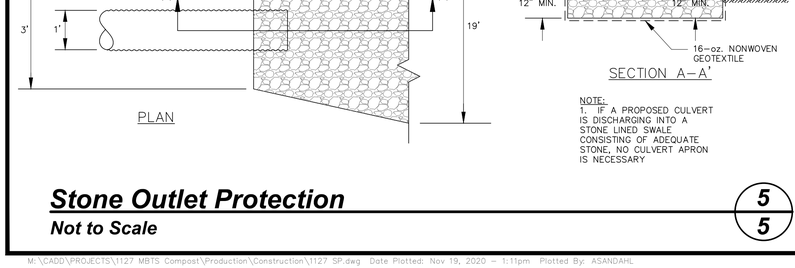


Outlet Structure Detail

Not to Scale

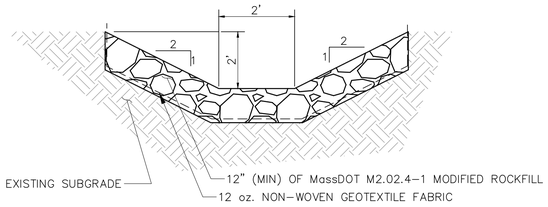
1/5



Typical Drainage Pipe

Not to Scale

2/5



Stormwater Swale

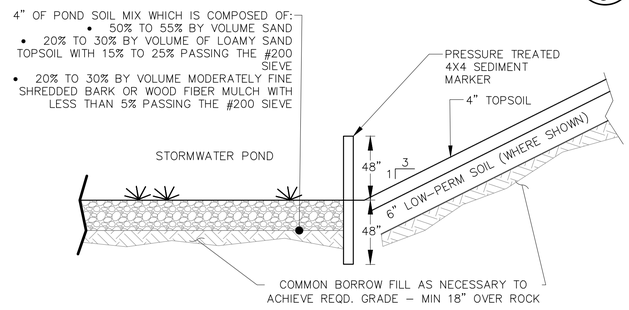
Not to Scale

4/5

Stone Outlet Protection

Not to Scale

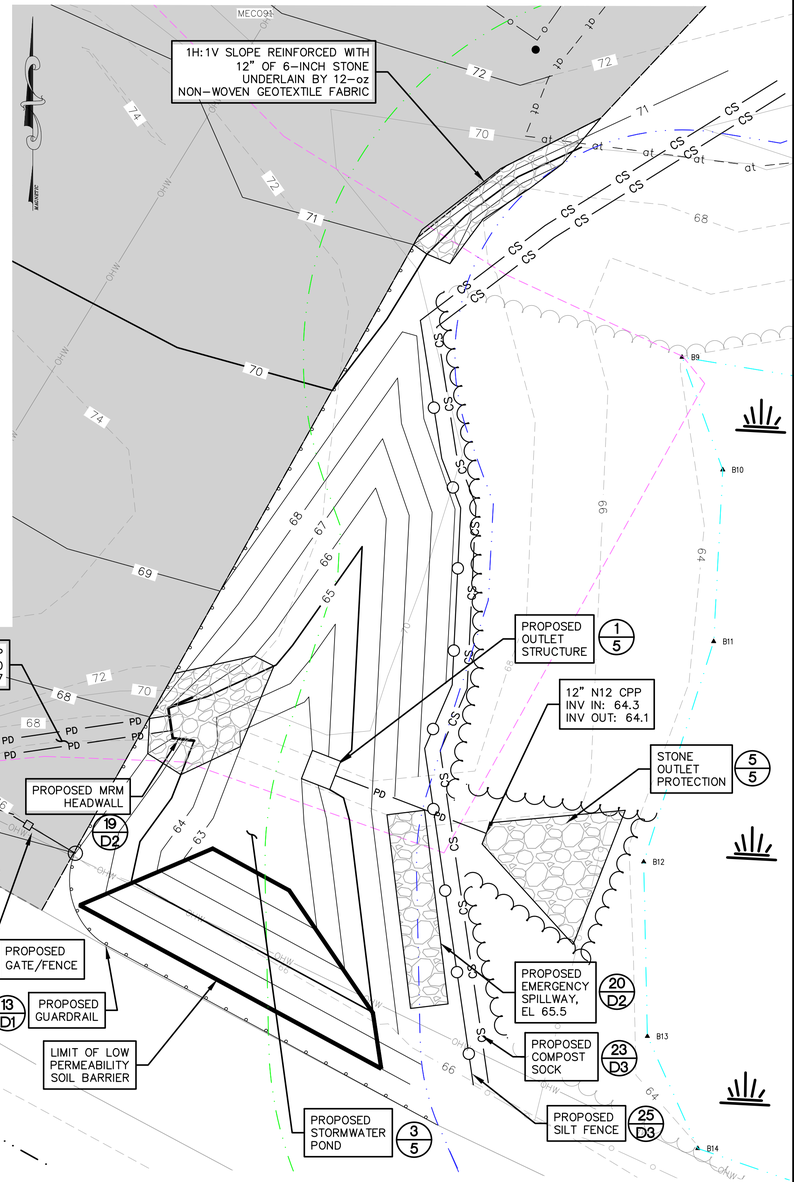
5/5



Stormwater Pond

Not to Scale

3/5



Stormwater Pond Plan

1" = 10'

Legend:

EXISTING 2' CONTOUR		PROPOSED 1' CONTOUR	80
EXISTING 10' CONTOUR	80	PROPOSED 5' CONTOUR	80
WETLAND SYMBOL	B8	PROPOSED TREELINE	
WETLAND FLAG AND ID		PROPOSED GUARDRAIL	
LIMIT OF WETLAND		PROPOSED GATE	
30' WETLAND BUFFER		PROPOSED DRAIN PIPE	PD
50' WETLAND BUFFER		PROPOSED SILT FENCE	
100' WETLAND BUFFER		PROPOSED COMPOST SOCK	CS
EXISTING ANCHOR TRENCH	at at	PROPOSED EDGE OF GRAVEL	
EXISTING TREELINE			
EXISTING OVERHEAD ELECTRIC	OHW	PROPOSED GRAVEL AREA	
EXISTING FENCE		PROPOSED STONE REINFORCEMENT	
EXISTING EXPOSED LEDGE			

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COMMONWEALTH OF MASSACHUSETTS ADAM J. SANDAHL CIVIL No. 49088 REGISTERED PROFESSIONAL ENGINEER

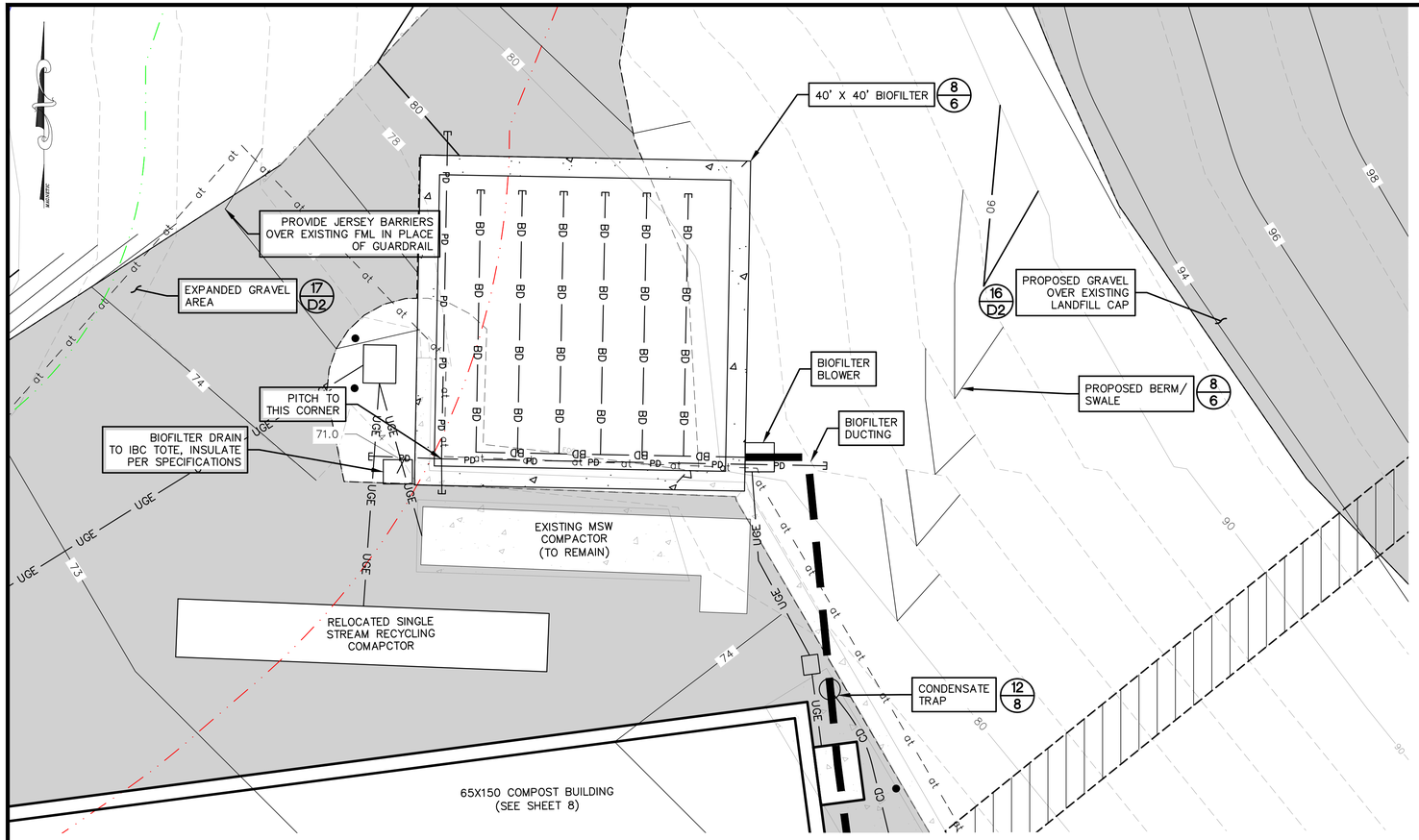
designed by: AJS	scale: 10' 0 20' Scale: 1" = 10'
drawn by: AJS/NJM	
approved by: AJS	
date: MAR 2020	
project no: 1127	
file name: 1127 SP.dwg	

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Stormwater Pond Plan and Details

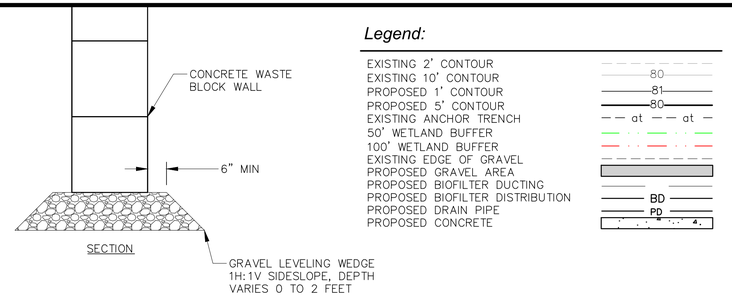
drawing no. 5

sheet: 5 of 21



Biofilter Area Plan

1" = 10'



Legend:

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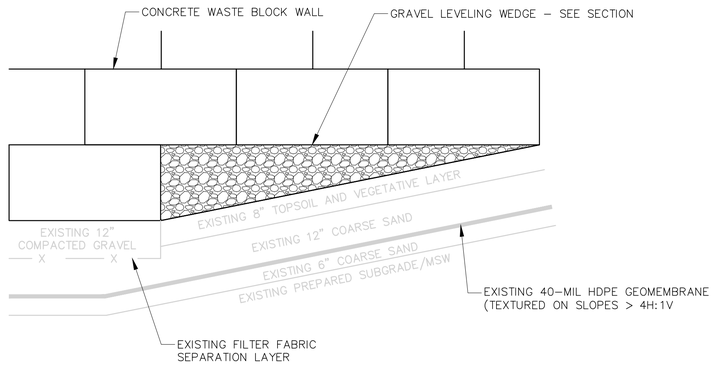
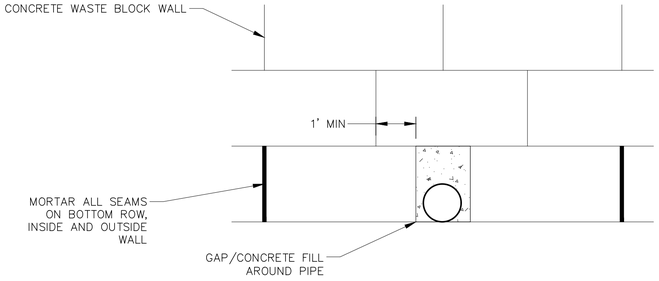
EXISTING 10' CONTOUR	81
PROPOSED 1' CONTOUR	80
PROPOSED 5' CONTOUR	
EXISTING ANCHOR TRENCH	at at
50' WETLAND BUFFER	
100' WETLAND BUFFER	
EXISTING EDGE OF GRAVEL	
PROPOSED GRAVEL AREA	
PROPOSED BIOFILTER DUCTING	
PROPOSED BIOFILTER DISTRIBUTION	BD
PROPOSED DRAIN PIPE	PD
PROPOSED CONCRETE	



Gravel Leveling Wedge

Not to Scale

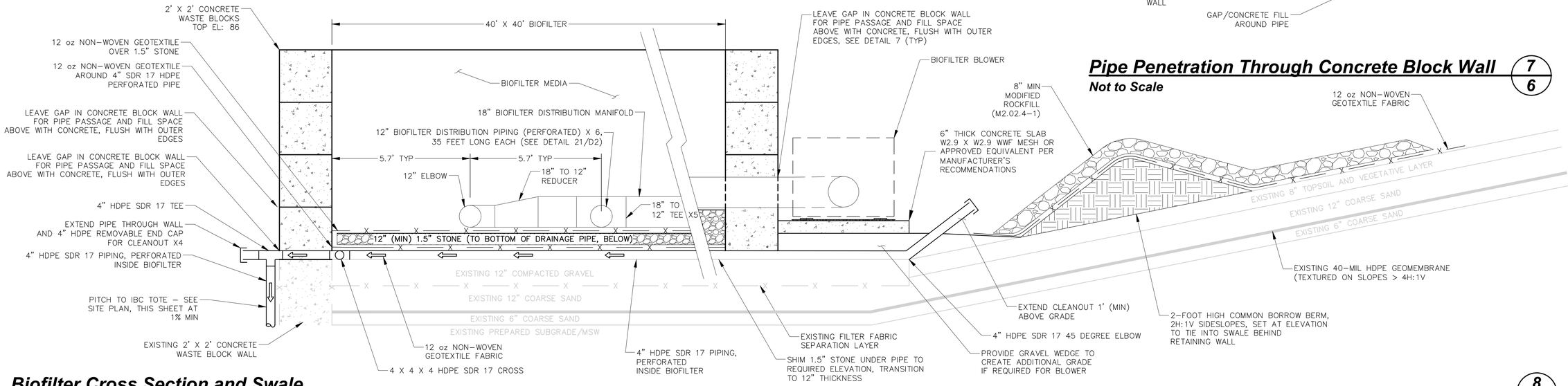
6 / -



Pipe Penetration Through Concrete Block Wall

Not to Scale

7 / 6



Biofilter Cross Section and Swale

Not to Scale

8 / 6

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COMMONWEALTH OF MASSACHUSETTS ADAM J. SANDAHL No. 39668 REGISTERED PROFESSIONAL ENGINEER

designed by: AJS	drawn by: AJS/NJM	approved by: AJS	scale: 0 10' 20' Scale: 1" = 10'
date: MAR 2020	project no: 1127	file name: 1127 SP.dwg	

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
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Biofilter Plan

drawing no. 6

sheet: 6 of 21

M:\CADD\PROJECTS\1127 MBTS Compost\Production\Construction\1127 SP.dwg Date Plotted: Dec 22, 2020 – 6:55am Plotted By: ASANDAHL

PROPOSED BIOFILTER

16-INCHES OF GRAVELS OVER EXISTING GRASSED CAP AREAS

1-FOOT OF GRAVELS OVER EXISTING GRAVEL AREA (CROSSHATCH)

65' X 150' COMPOST BUILDING

EXISTING CELL TOWER AREA

MSW COMPACTOR

S COMPACTOR

VP1

VP3

VP4

VP5

Legend:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR (80)
- PROPERTY LINE
- EXISTING ANCHOR TRENCH (at — at)
- WETLAND LIMIT
- WETLAND SYMBOL
- WETLAND FLAG AND LABEL (B8)
- 50' WETLAND BUFFER
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING TREELINE
- EXISTING LANDFILL VENT PIPE
- EXISTING LF GAS TRENCH
- PROPOSED 1' CONTOUR (81)
- PROPOSED 5' CONTOUR (80)
- PROPOSED LIMIT OF GRAVEL
- PROPOSED GRAVEL AREA

no.	revision	date	by
3	Issued for Bidding	DEC 20	AJS
2	Issued for MassDEP Review	SEP 20	AJS
1	Issued for Town Conservation Commission Review	MAR 20	AJS

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COMMONWEALTH OF MASSACHUSETTS — ADAM J. SANDAHL — CIVIL — No. 49598 — REGISTERED PROFESSIONAL ENGINEER

designed by: AJS
drawn by: AJS/NJM
approved by: AJS
scale: 30' 0 60' — 1" = 30' Scale:
date: MAR 2020
project no: 1127
file name: 1127 SP.dwg

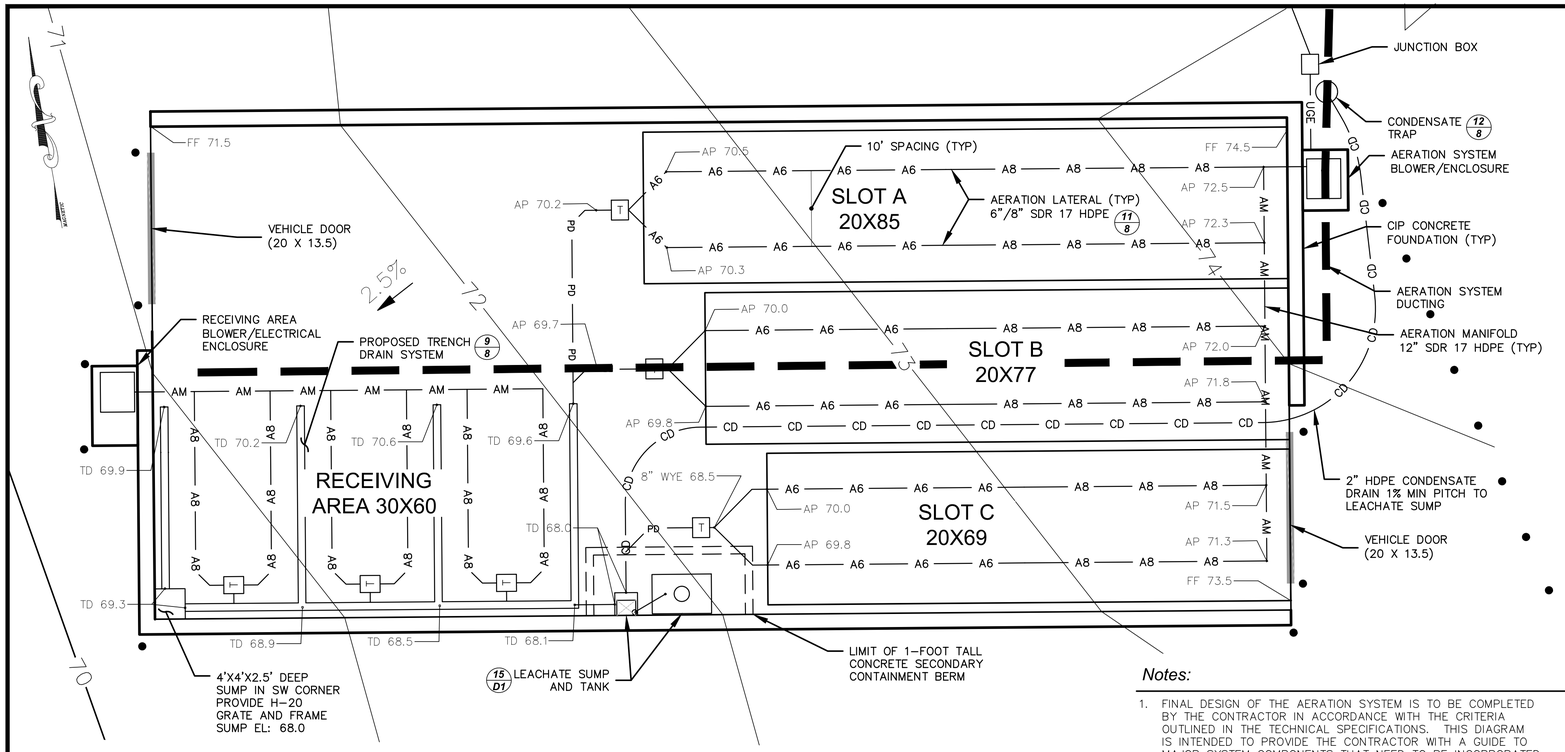
Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Cap Area Plan

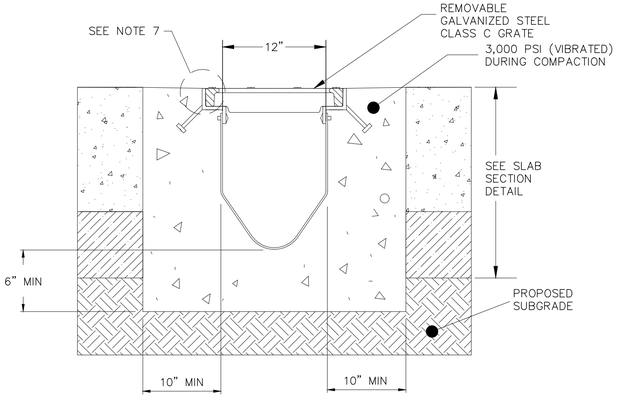
drawing no. 7

sheet: 7 of 21

M:\CADD\PROJECTS\1127 MBTS Compost\Production\Construction\1127 SP.dwg Date Plotted: Nov 19, 2020 – 1:15pm Plotted By: ASANDAHL



Building Plan
1" = 10'



Trench Drain
Not to Scale

9/8

NOTES:

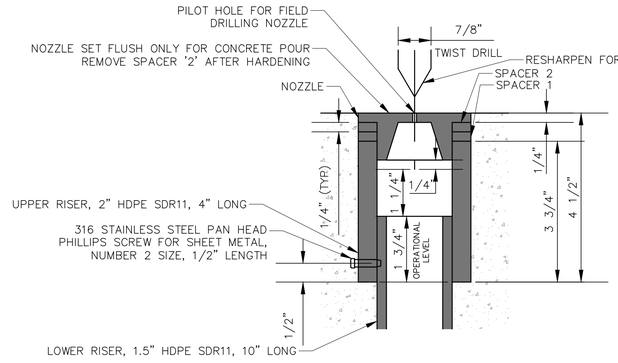
1. TRENCH DRAIN SHALL BE ACODRAIN FIBERGLASS K300 OR APPROVED EQUIVALENT. SYSTEM SHALL INCLUDE END CAP ADAPTER COMPATIBLE WITH A 8" HDPE SDR 17 OUTLET PIPE.
2. CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN FIBERGLASS WITH GALVANIZED STEEL FRAME. FRAME SHALL BE MADE OF ANGLE STEEL WITH WELDED STEEL CONCRETE ANCHORS AND INSTALLATION BRACKETS. FRAME SHALL HAVE WELDED CROSS MEMBERS THREADED FOR GRATE LOCKDOWN.
3. THE SYSTEM SHALL BE 12 INCHES NOMINAL INSIDE WIDTH AND BUILT-IN SLOPE OF MINIMUM 0.5%. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE LAP JOINT.
4. CHANNEL SHALL WITHSTAND LOADING TO LOAD CLASS C (DIN 19 580)(56,000 LB). GRATES SHALL BE SECURED TO FRAME UTILIZING TWO BOLTS. CHANNEL AND GRATE SHALL BE INDEPENDENTLY CERTIFIED TO MEET THE SPECIFIED DIN 19580 LOAD CLASS.
5. THE FIBERGLASS SHALL HAVE A COMPRESSIVE STRENGTH OF 16,000 PSI, TENSILE STRENGTH OF 16,400 PSI, FLEXURAL STRENGTH OF 24,000 PSI AND THE WATER ABSORPTION RATE OF NIL. THE FIBERGLASS SHALL BE RESISTANT TO PROLONGED SALT EXPOSURE, REPETITIVE FROST CYCLES AND CHEMICALLY RESISTANT TO DILUTE ACIDS AND ALKALIS.
6. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
7. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROXIMATELY $\frac{1}{8}$" ABOVE THE TOP OF THE CHANNEL EDGE.
8. SEE INVERT ELEVATIONS ON THIS SHEET FOR DEPTH OF DRAIN.
9. TRENCH DRAIN GRATES SHALL HAVE A MAXIMUM OPENING OF 1 INCH TO LIMIT THE SIZE OF PARTICLES ENTERING THE TRENCH DRAIN SYSTEM.

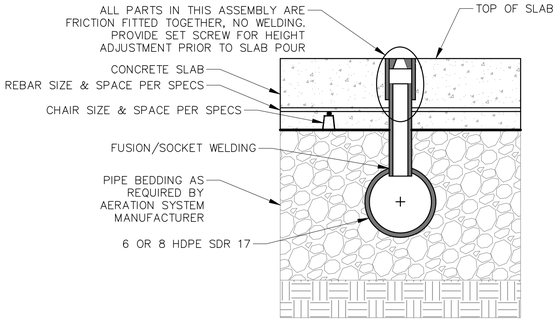
Notes:

1. FINAL DESIGN OF THE AERATION SYSTEM IS TO BE COMPLETED BY THE CONTRACTOR IN ACCORDANCE WITH THE CRITERIA OUTLINED IN THE TECHNICAL SPECIFICATIONS. THIS DIAGRAM IS INTENDED TO PROVIDE THE CONTRACTOR WITH A GUIDE TO MAJOR SYSTEM COMPONENTS THAT NEED TO BE INCORPORATED INTO THEIR DESIGN, AND PROVIDE THE GENERAL EXPECTED LAYOUT. THE BUILDING HAS INTERNAL DIMENSIONS OF 65' X 150'.
2. SUFFICIENT LEDGE TO BE REMOVED TO ALLOW SPACE FOR THE INFRASTRUCTURE SHOWN AND ASSOCIATED BEDDING MATERIALS AS PART OF THIS PROJECT.
3. SPARGERS SHOWN IN DETAIL ON THIS SHEET SHALL BE SPACED AT INTERVALS OF 3 LINEAR FEET, 220 SPARGERS TOTAL.
4. AERATION SYSTEM PIPING TO FOLLOW SLAB GRADE TO TERMINUS SHOWN. AERATION PIPING TO DRAIN TO SUMP.
5. A $\frac{1}{2}$ HP SUMP PUMP TO BE PROVIDED TO PUMP COMPOST LEACHATE FROM THE SUMP TO THE ABOVE GRADE LEACHATE COMPOST LEACHATE TANK SHOWN ON THE PLAN. SUMP PUMP AND ALL MATERIALS IN THE SUMP SHALL BE COMPATIBLE WASTEWATER CHARACTERISTICS.
6. SLAB IS TO BE PITCHED TO THE SOUTHWEST CORNER OF THE BUILDING AT 2.5%.
7. SEE STRUCTURAL SHEETS AND TECHNICAL SPECIFICATIONS FOR DETAILED INFORMATION ON THE SLAB, RETAINING WALLS, AND STRUCTURE DESIGN, INCLUDING PUSH WALLS.
8. THE CONDENSATE TRAP FOR THE DUCTWORK IS SHOWN ON THIS PLAN ALONG WITH THE CONDENSATE DRAIN, WHICH IS TO DRAIN BACK TO THE LEACHATE SUMP AT A MINIMUM PITCH OF 1%.
9. LEACHATE TANK, SUMP HATCH, AND ABOVE GRADE FORCEMAIN SHALL BE INSULATED PER SPECIFICATIONS.

Legend:

69	PROPOSED 1' CONTOUR
70	PROPOSED 5' CONTOUR
A6 A6 A6	PROPOSED AERATION PIPING (6" SDR 17)
A8 A8 A8	PROPOSED AERATION PIPING (8" SDR 17)
AM AM AM	PROPOSED AERATION MANIFOLD (12" SDR 17)
	PROPOSED TRENCH DRAIN
PD PD PD	PROPOSED DRAIN (4" SDR 17)
CD CD CD	PROPOSED CONDENSATE DRAIN (2" SDR 17)
FM FM FM	PROPOSED FORCEMAIN (2" SDR 17)
	PROPOSED BIOFILTER DUCTWORK
T	PROPOSED LEACHATE TRAP
FF 74.5	PROPOSED FINISH FLOOR SPOT GRADE
AP 71.5	PROPOSED AERATION PIPING SPOT GRADE
TD 69.2	PROPOSED TRENCH DRAIN SPOT GRADE

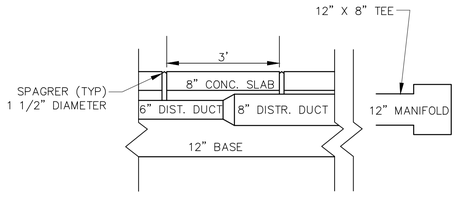




NOTE: AERATION SYSTEM AND SPARGERS SHALL BE DESIGNED BY GREEN MOUNTAIN TECHNOLOGIES, AIRFLOOR SYSTEMS, INC., OR APPROVED EQUIVALENT

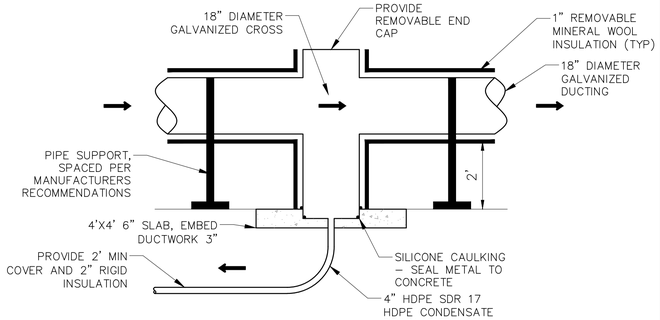
Sparger
Not to Scale

10/-



Aeration Pipe Transition
Not to Scale

11/8



Condensate Trap
Not to Scale

12/8

no.	revision	date	by
3	Issued for Bidding	DEC 20	AJS
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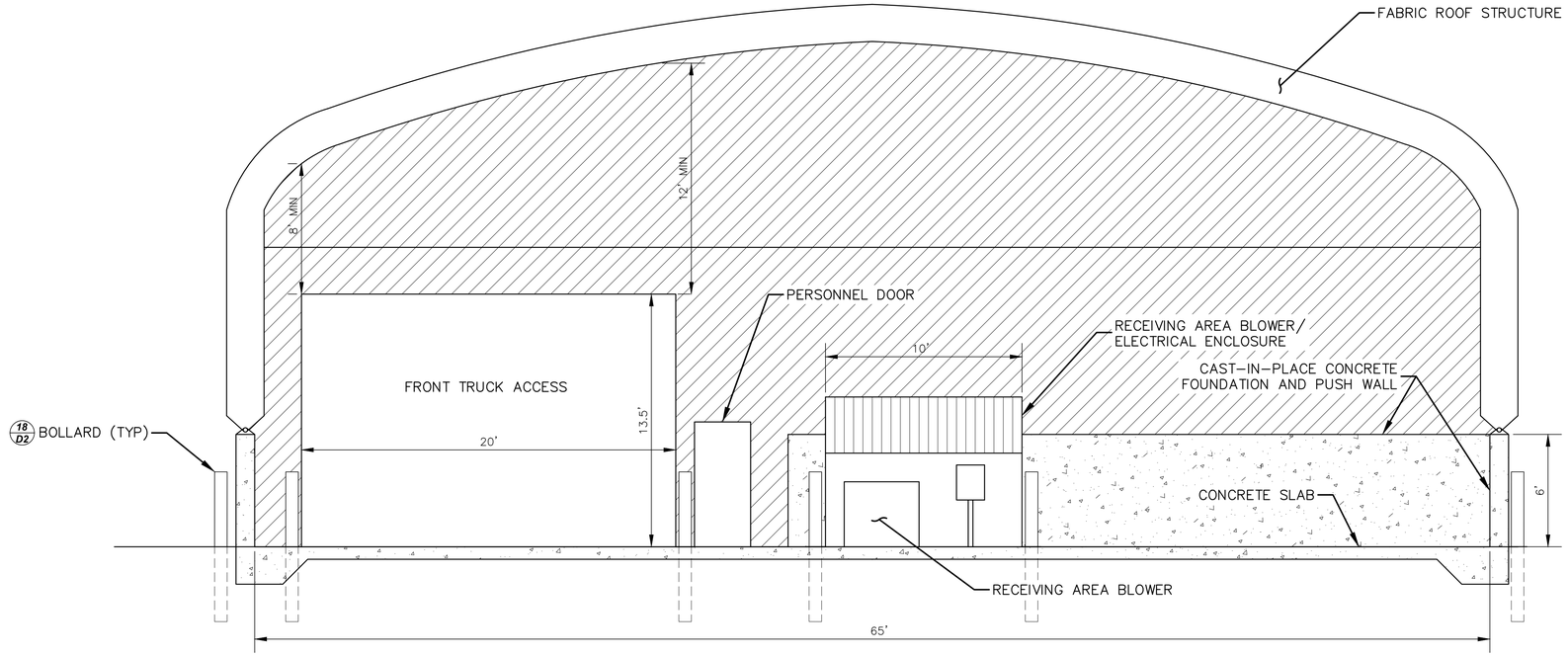
COMMONWEALTH OF MASSACHUSETTS ADAM J. SANDAHL CIVIL No. 42568 REGISTERED PROFESSIONAL ENGINEER

designed by: AJS	drawn by: AJS/NJM
approved by: AJS	scale: 0 10' 20' Scale: 1" = 10'
date: MAR 2020	project no: 1127
file name: 1127 SP.dwg	

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding
Compost Building Floor Plan

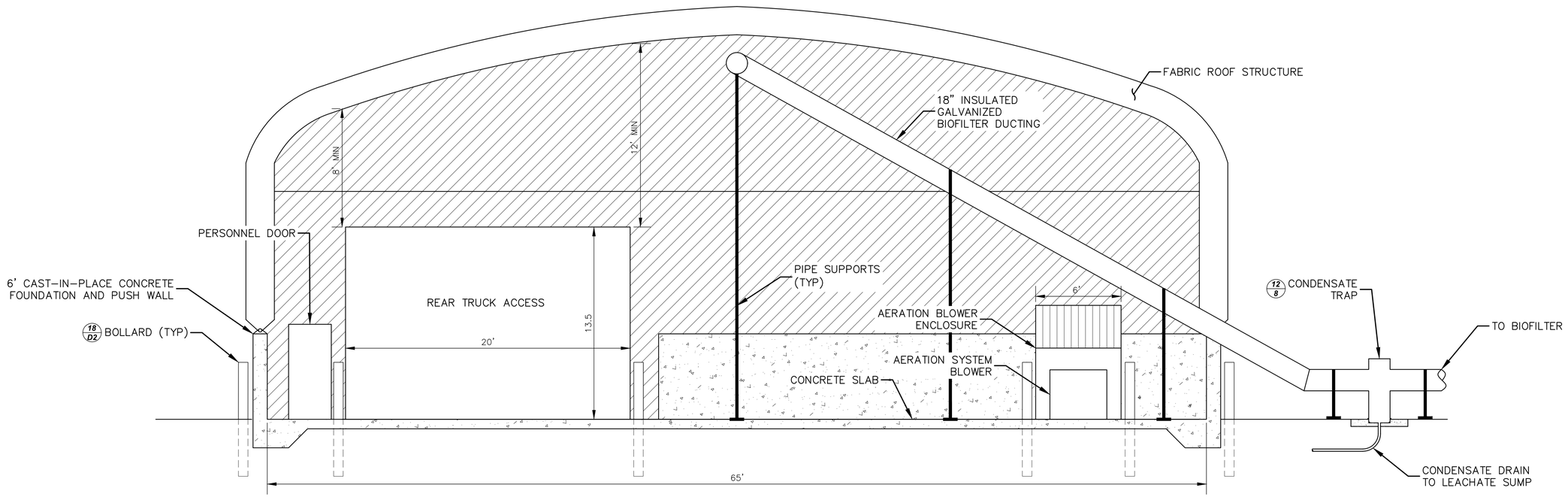
drawing no. 8

sheet: 8 of 21



Front Elevation (West), Adjacent to Pine Street

1" = 4'



Rear Elevation (East), Adjacent to Landfill

1" = 4'

no.	revision	date	by
3	*Issued for Bidding*	*DEC 20*	*AJS*
2	*Issued for MassDEP Review*	*SEP 20*	*AJS*
1	*Issued for Town Conservation Commission Review*	*MAR 20*	*AJS*

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COMMONWEALTH OF MASSACHUSETTS — ADAM J. SANDAHL — CIVIL — No. 49668 — REGISTERED PROFESSIONAL ENGINEER

designed by: AJS
drawn by: AJS/NJM
approved by: AJS
date: MAR 2020
project no: 1127
file name: 1127 SP.dwg
scale: 0 4' 8' Scale: 1" = 4'

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Front and Rear Building Elevation Plan

drawing no. 9

sheet: 9 of 21

PROPOSED OVERHEAD WIRE

PROPOSED SERVICE TO COMPACTORS

PROPOSED COMPACTOR POWER DISTRIBUTION ENCLOSURE

29 D4

CONFIRM ANCHOR TRENCH LOCATION PRIOR TO EXCAVATING FOR CONDUIT

PROPOSED CONDUIT DITCH

30 D4

MSW COMPACTOR

SINGLE STREAM COMPACTOR

PROPOSED UNDERGROUND DISTRIBUTION TO COMPACTORS

PROPOSED UTILITY POLE FOR NEW SERVICES – FINAL DESIGN OF COMPOST FACILITY ELECTRIC BY CONTRACTOR (NEW COMPOST FACILITY SERVICES NOT SHOWN)

EXISTING OVERHEAD UTILITIES TO BE COORDINATED WITH APPROPRIATE UTILITIES TO ENSURE REQUIRED CLEARANCES

PINE ST

MECO91

EOG

Notes:

1. FIELD SURVEY PERFORMED BY DOUCET SURVEY OF NEWMARKET, NEW HAMPSHIRE. IN SEPTEMBER 2018.
2. JURISDICTIONAL WETLANDS DELINEATED BY CRAIG WOOD OF ESS GROUP, INC. IN SEPTEMBER 2018.
3. HORIZONTAL DATUM BASED ON MASSACHUSETTS STATE PLANE COORDINATES, MAINLAND ZONE (2001) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
4. VERTICAL DATUM BASED ON APPROXIMATE NAVD88 (GEOID12A) (±.2') DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
5. LOCATION OF ANCHOR TRENCH AND GAS VENT TRENCHES DEPICTED ON THIS PLAN IS APPROXIMATE AND BASED ON CONSTRUCTION DRAWINGS TITLED "CONTRACT FOR LANDFILL CLOSURE AND TRANSFER STATION" PREPARED BY CAMP DRESSER & MCKEE INC DATED FEBRUARY 1999.
6. VEHICLES AND EQUIPMENT DRIVING ON THE LANDFILL CAP (WITHIN THE ANCHOR TRENCH LIMITS SHOWN ON THE PLAN) SHALL BE LOW-GROUND PRESSURE, DEMONSTRATING LESS THAN 4.7 PSI ABOVE THE FML (GEOMEMBRANE). CLOSURE CONSTRUCTION DRAWINGS FOR THE PROJECT (REFERENCED IN NOTE 5, ABOVE) SHOW THE FML 20 INCHES BELOW GRADE UNDER VEGETATED CAP AREAS AND 24 INCHES UNDER GRAVEL CAP AREAS. GRAVELS ARE TO BE ADDED SUCH THAT THERE IS 3-FEET OF MATERIAL OVER THE GEOMEMBRANE OR AN ADDITIONAL 12 INCHES OVER EXISTING GRAVEL AREAS AND 16 INCHES OVER EXISTING VEGETATED AREAS. a 12-OZ NON-WOVEN GEOTEXTILE FABRIC IS TO BE INSTALLED UNDER NEW GRAVELS.
7. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR, PRIOR TO COMMENCING CONSTRUCTION, IS RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UTILITIES AND NOTIFYING THE APPROPRIATE UTILITY TO DEMONSTRATE THE ACTUAL FIELD LOCATION AND IDENTIFY POTENTIAL INTERFERENCE WITH THE PROPOSED WORK. CONTRACTOR SHALL NOTIFY DIG SAFE (811 OR 888-DIG-SAFE) PRIOR TO CONSTRUCTION.
8. THE CONTRACTOR SHALL COORDINATE WORK WITH TOWN TRANSFER STATION OPERATIONS AND MAINTAIN ACCESS TO FACILITIES TO REMAIN AT THE SITE DURING CONSTRUCTION. CONTRACTOR SHALL PERFORM UTILITY WORK WHICH MAY AFFECT TRAFFIC DURING OFF-HOURS. THE TRANSFER STATION IS OPEN TO THE PUBLIC ON WEDNESDAY FROM 7:30 A.M. TO 3:00 P.M. AND SATURDAY FROM 10:00 A.M. TO 3:00 P.M. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO TRANSFER STATION OPERATIONS DURING CONSTRUCTION AND SHALL MINIMIZE IMPACTS TO VEHICULAR ACCESS TO THE FACILITIES.
9. CONTRACTOR SHALL PROTECT EXISTING STRUCTURES IN THE WORK AREA AND SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE TO THE SATISFACTION OF THE TOWN OF MANCHESTER AND OTHER OWNERS AS APPLICABLE.
10. THE CONTRACTOR SHALL INSTALL ALL REQUIRED EROSION CONTROL DEVICES AND PREVENT TRANSPORTATION OF SEDIMENT BEYOND THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE SITE AGAINST EROSION AND IS RESPONSIBLE FOR REPAIRING AND/OR REPLACEMENT OF DAMAGED MATERIALS AND SOIL. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ADDITIONAL EROSION CONTROLS AS NEEDED, OR AS DIRECTED BY THE TOWN OR ENGINEER, DURING CONSTRUCTION TO RESTRICT MOVEMENT OF SEDIMENT OUT OF THE PROJECT AREA.
11. CONTRACTOR IS TO PROVIDE NEW ELECTRICAL SERVICES TO THE TRANSFER STATION AND COMPOST FACILITY IN CONFORMANCE WITH PROJECT SPECIFICATIONS AND TOWN AND ELECTRICAL CODE REQUIREMENTS.
12. THE EXISTING CELL TOWER AND ASSOCIATED OVERHEAD ELECTRIC, TRANSFORMER, AND FENCE IS TO BE PROTECTED AT ALL TIMES. CONTRACTOR SHALL COORDINATE WORK IN THE AREA OF THE CELL TOWER, INCLUDING BUT NOT LIMITED TO BLASTING OPERATIONS, WITH THE CELL TOWER OPERATORS, CROWN CASTLE (800) 788-7011.
13. THE PROJECT HAS RECEIVED PERMITS FROM THE MBTS CONSERVATION COMMISSION/MASSDEP FOR WETLAND BUFFER IMPACTS AND FROM MASSDEP-NERO FOR POST-CLOSURE USE OF THE LANDFILL. THESE PERMITS ARE PART OF THE CONTRACT DOCUMENTS AND MUST BE ADHERED TO THROUGHOUT THE PROJECT.
14. PROPOSED NEW SERVICES WITH COMPOST FACILITY DISTRIBUTION NOT NOTED,
15. FINAL LOCATION OF THE POLES TO BE DETERMINED BY THE UTILITY.

Legend:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPERTY LINE
- EXISTING ANCHOR TRENCH
- WETLAND LIMIT
- WETLAND SYMBOL
- WETLAND FLAG AND LABEL
- 50' WETLAND BUFFER
- 30' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING TREELINE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC (APPROX)
- EXISTING FENCE
- EXISTING EDGE OF GRAVEL
- EXISTING LIMIT OF LEDGE
- EXISTING LANDFILL VENT PIPE
- EXISTING LF GAS TRENCH
- EXISTING STRUCTURE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED DRAIN PIPE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED OVERHEAD ELECTRIC
- PROPOSED UTILITY POLE
- PROPOSED TREELINE
- PROPOSED SILT FENCE
- PROPOSED COMPOST SOCK
- PROPOSED FENCELINE
- PROPOSED GRAVEL AREA

no.	revision	date	by
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COMMONWEALTH OF MASSACHUSETTS ADAM J. SANDAHL CIVIL No. 49596 REGISTERED PROFESSIONAL ENGINEER

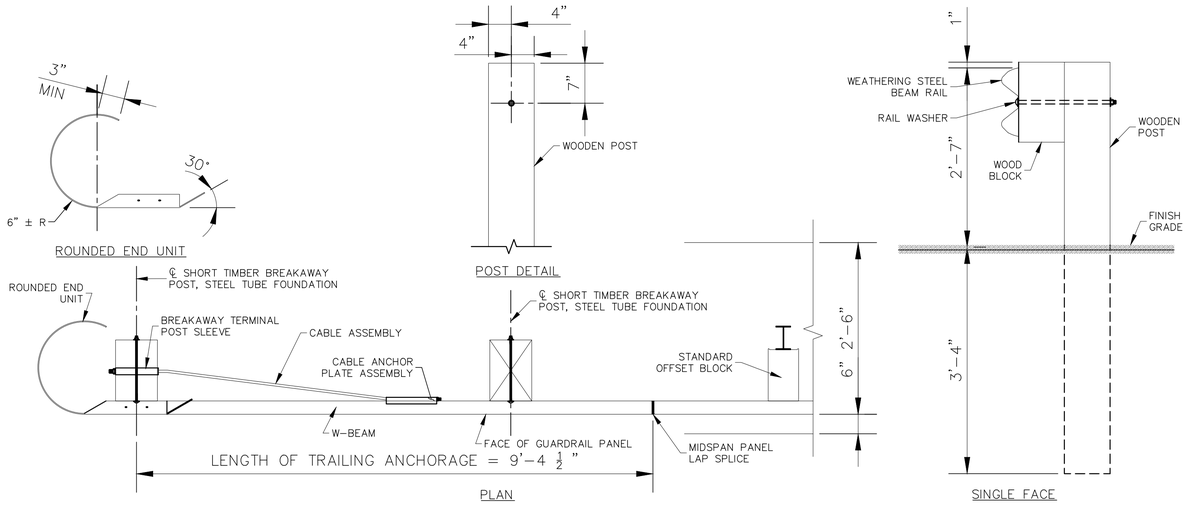
designed by: AJS
drawn by: AJS/NJM
approved by: AJS
date: MAR 2020
project no: 1127
file name: 1127 SP.dwg
scale: 40' 20' 0 Scale: 1" = 20'

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Electrical Site Plan

drawing no. 10

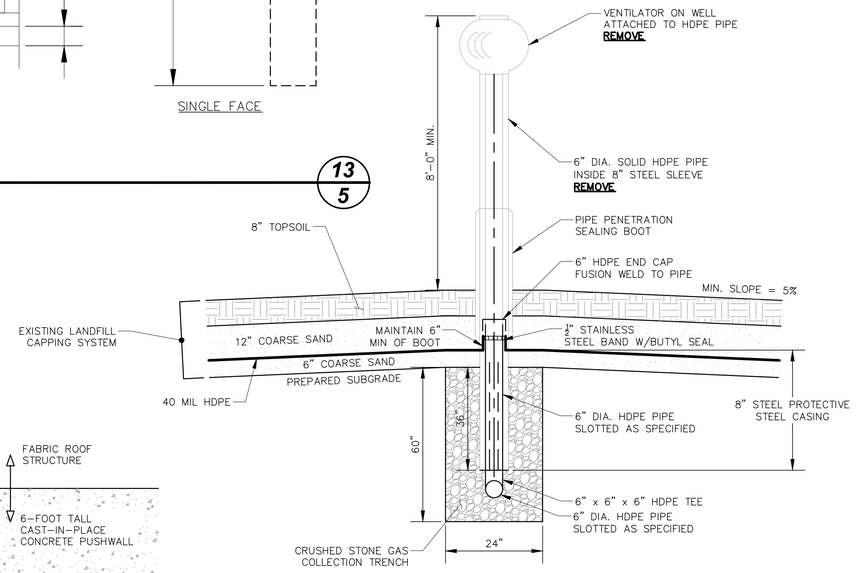
sheet: 10 of 21



Guardrail

Not to Scale

13
5



Passive Gas Vent Demoliton

Not to Scale

14
3

NOTES:

1. CONTRACTOR'S LIMITS OF WORK INCLUDES EXCAVATION, PREPARATION OF SUBGRADE AND CRUSHED STONE BASE, CONCRETE BASE SLAB, STRUCTURE AND RISER SECTION, SUPPLYING AND CONNECTING ALL PIPING, CONDUIT, DEVICES & HARDWARE INTERNAL & EXTERNAL, ALUMINUM ACCESS HATCH (H-20 LOADING) BACKFILL, COMPACTION, AND TIE-IN TO TOP SLAB.

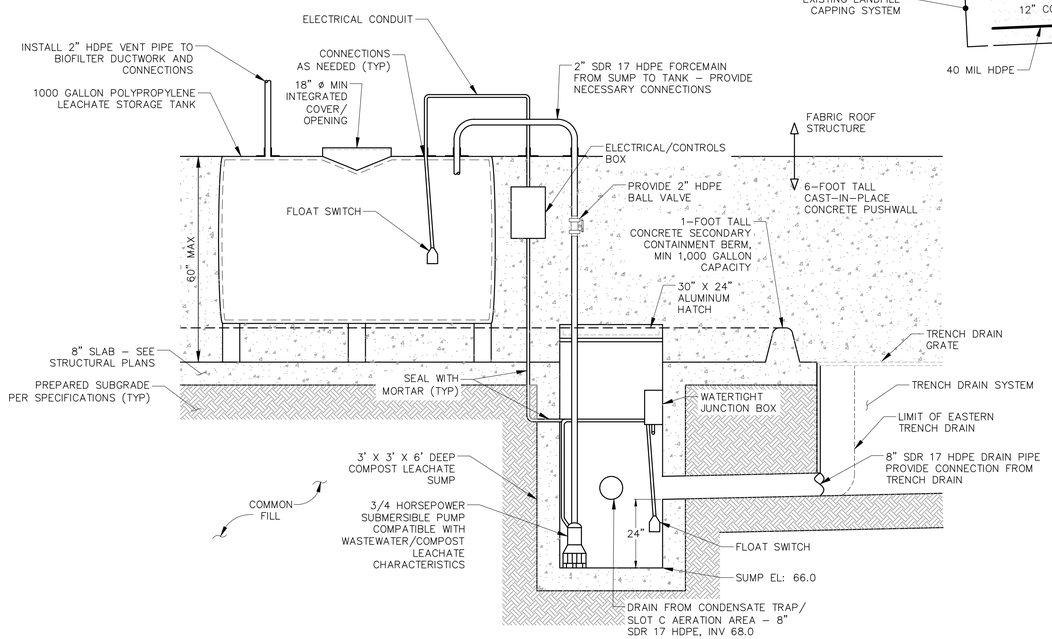
2. LEACHATE TANK AND RISER SHALL BE DESIGNED TO BE SITED IN AN INDUSTRIAL SETTING, BE CONSTRUCTED OF POLYETHYLENE (OR APPROVED EQUIVALENT), AND HAVE A MINIMUM CAPACITY OF 1,000 GALLONS.

3. PIPE PENETRATIONS TO THE RISER SHALL BE WATERTIGHT AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

4. LEACHATE TANK SHALL BE VENTED TO AND CONNECTED TO THE BIOFILTER DUCTWORK THROUGH A WATERTIGHT PENETRATION AT THE TOP OF THE TANK. THE VENT PIPE SHALL BE 2" HDPE SDR 17. CONTRACTOR TO PROVIDE NECESSARY HARDWARE TO RUN THE PIPING UP THE CONCRETE WALL, AND UP AND ACROSS THE FABRIC ROOF TRUSS AND CONNECT TO THE BIOFILTER DUCTWORK.

5. LEDGE IS EXPECTED TO BE ENCOUNTERED IN THE AREA OF THE CONCRETE SLAB AND SUMP.

6. SUMPS AND SECONDARY SPILL CONTAINMENT AREA TO RECEIVE COATINGS AS REQUIRED BY THE SPECIFICATIONS.



Compost Leachate Tank and Sump

Not to Scale

15
8

DEMOLITION SEQUENCE:

1. ALL GAS VENT DEMOLITION TO BE COMPLETED UNDER THE SUPERVISION OF THE ENGINEER. ENGINEER SHALL HAVE COMBUSTIBLE GAS METER IN THE PROJECT AREA TO MEASURE FOR COMBUSTIBLE GAS DURING THIS WORK. COMPLETE GAS VENT DEMOLITION PRIOR TO INSTALLING NEW GRAVELS OVER LANDFILL CAP.

2. REMOVE VENTILATION TURBINE (IF PRESENT).

3. REMOVE CLAMP SEALING BOOT TO VENT PIPE AND CUT 40-MIL HDPE GEOMEMBRANE FROM 8" METAL SLEEVE.

4. REMOVE PROTECTIVE METAL SLEEVE.

5. CAREFULLY REMOVE 12-INCHES OF CAPPING SOILS AROUND THE PIPE AND CUT AND REMOVE 6" HDPE PIPE TO 12" ABOVE GEOMEMBRANE.

6. PROVIDE NEW HDPE END CAP AND SEAL WITH BUYYL CAULKING.

7. RECLAMP HDPE GEOMOMBRANE TO HDPE VENT PIPE AND PROVIDE BUTYL SEAL BETWEEN HDPE GEOMEMBRANE AND PIPE. THERE SHALL BE AT LEAST 6" OF GEOMEMBRANE BOOT ABOVE THE LINER.

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COMMONWEALTH OF MASSACHUSETTS ADAM J. SANDAHL No. 36208 REGISTERED PROFESSIONAL ENGINEER

designed by: AJS | drawn by: AJS/NJM | approved by: AJS | scale:

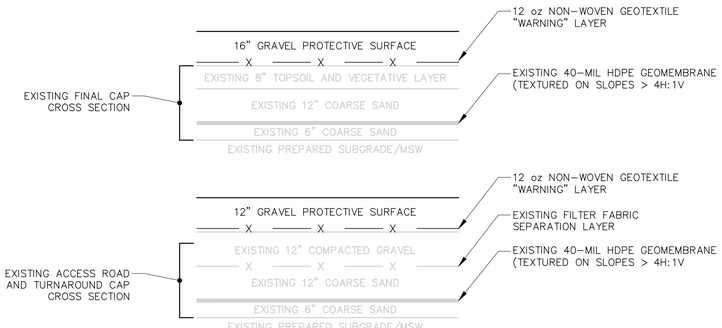
date: MAR 2020 | project no: 1127 | file name: 1127-Details.dwg

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding

Site Details

drawing no. D1

sheet: 11 of 21

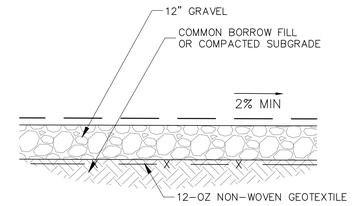


NOTES:
1. EXISTING LANDFILL CAPPING SYSTEM INFORMATION TAKEN FROM CONSTRUCTION DRAWINGS PREPARED BY CAMP, DRESSER & MCKEE INC TITLED "CONTRACT FOR LANDFILL CLOSURE AND TRANSFER STATION" DATED FEBRUARY 1999.

Proposed Gravel Over Existing Landfill Cap

16/4

Not to Scale

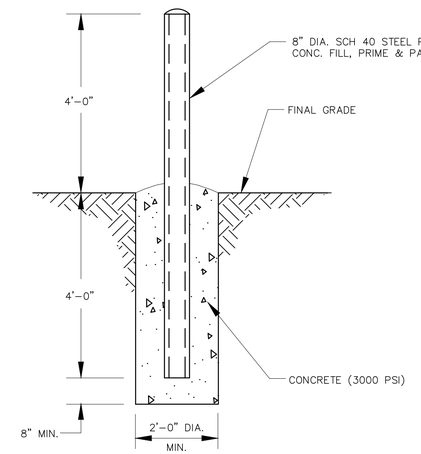


NOTES:
1. FOR NON-LANDFILL CAP AREAS

Typical Gravel Section

17/4

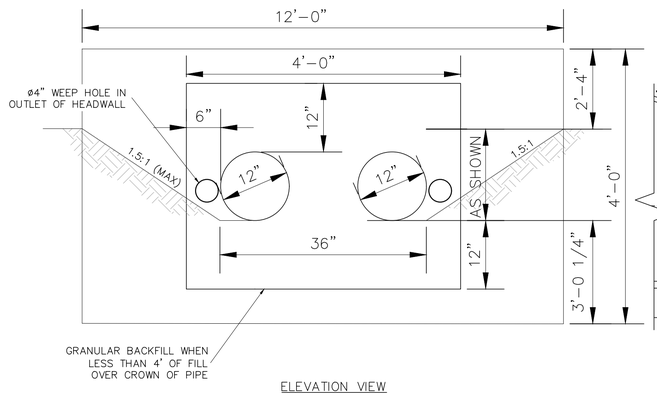
Not to Scale



Steel Bollard Detail

18/7

Not to Scale



Masonry Rubble Mortar (MRM) Headwall

19/5

Not to Scale

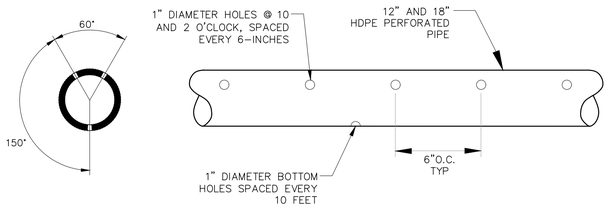
NOTES:

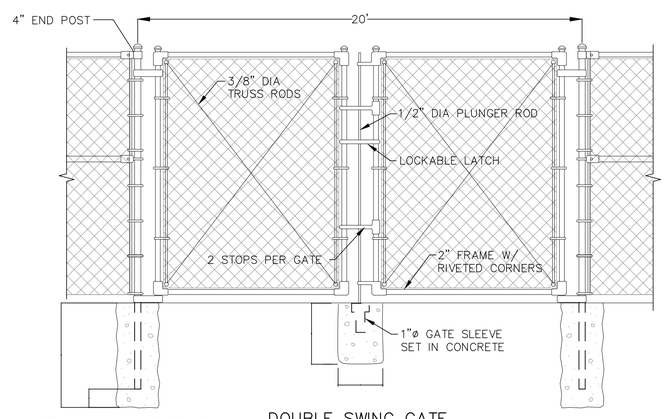
1. BIOFILTER MANIFOLD AND DISCHARGE PIPING SHALL BE ADS N-12 DUAL WALL SMOOTH CORE CORRUGATED PLASTIC PIPE, OR APPROVED EQUIVALENT. PIPING SHALL BE PROVIDED WITH 1-INCH DIAMETER HOLES SPACED 6-INCHES ON CENTER. THERE SHALL BE SETS OF HOLES AT EACH INTERVAL, 30 DEGREES FROM VERTICAL, i.e., ONE AT 10 O'CLOCK AND ONE AT 2 O'CLOCK. PIPES SHALL ALSO HAVE A 1-INCH HOLE DRILLED IN THE BOTTOM EVERY 10 FEET TO ALLOW FOR DRAINAGE OF TRAPPED WATER. PIPES SHALL BE CAPPED AT THE END.
2. DISCHARGE PIPES SHALL PITCH BETWEEN 1 AND 2%.
3. BIOFILTER MANIFOLD PIPING SHALL BE 18" AND DISCHARGE PIPING SHALL BE 12" DIAMETER.
4. BIOFILTER DISCHARGE PIPING SHALL HAVE A MINIMUM LENGTH OF 35 FEET.

Perforated HDPE Biofilter Discharge Pipe

21/6

Not to Scale





Fence and Gate

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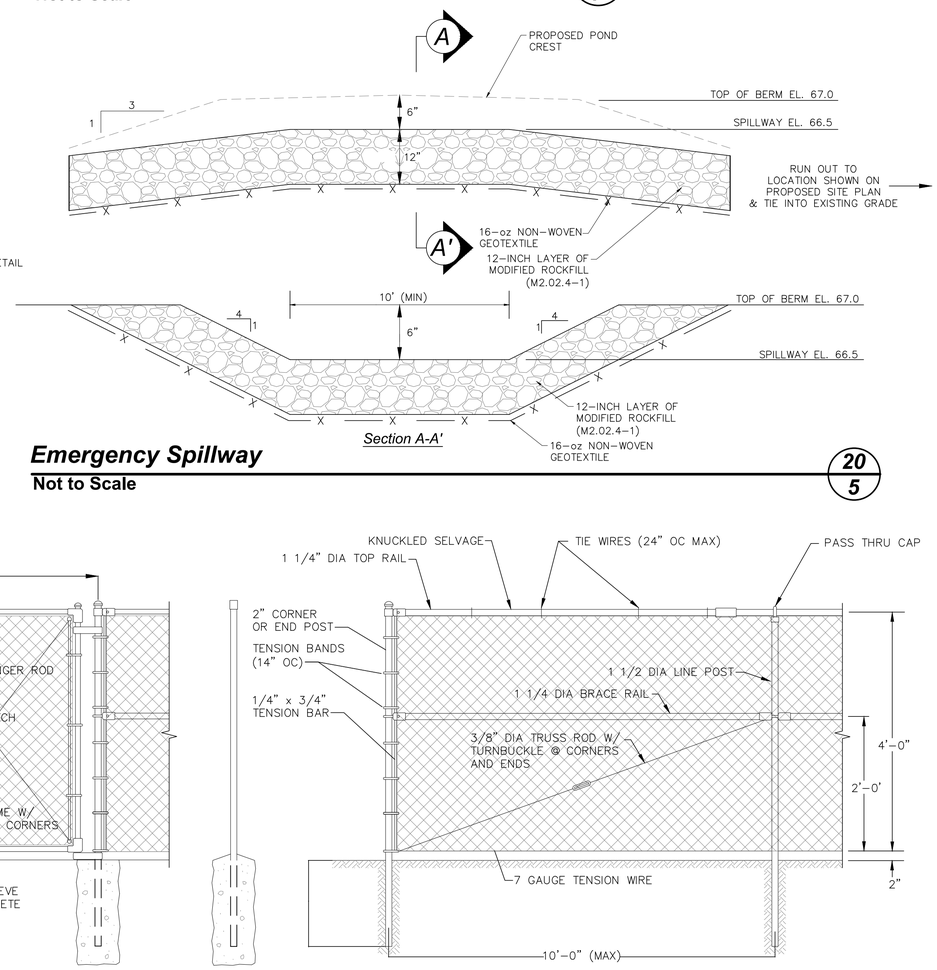

Emergency Spillway

20/5

Not to Scale

NOTES:

1. END OR CORNER POSTS: NOM 2" DIA GALV STL PIPE, MIN 3.65 LB/LF OR 2 1/4" x 2" "H" SECTION, 4.10 LB/LF, OR 3 1/2" x 3 1/2" "L" SECTION WITH INTEGRAL FABRIC LOOPS 5.14 LB/LF.
2. LINE POSTS: NOM 1 1/2" DIA GALV STL PIPE, MIN 2.72 LB/LF OR 1 7/8" x 1 5/8" "H" SECTION, 2.70 LB/LF, OR 1 7/8" x 1 5/8" "C" SECTION, 2.28 LB/LF.
3. TOP & BRACE RAILS: NOM 1 1/4" DIA GALV STL PIPE, MIN 2.27 LB/LF OR 1 5/8" x 1 1/4" " " SHAPED, ROLLED FORMED SECTION.
4. STRETCHER BARS: LENGTH TO BE 1" LESS THAN FULL HEIGHT OF FABRIC. ONE STRETCHER BAR FOR EACH GATE AND END POST, AND TWO STRETCHER BARS FOR CORNER AND BRACING.

22/4

no.	revision	date	by
3	Issued for Bidding	DEC 20	AJS
2	Issued for MassDEP Review	SEP 20	AJS
1	Issued for Town Conservation Commission Review	MAR 20	AJS

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COMMONWEALTH OF MASSACHUSETTS — ADAM J. SANDAHL — No. 35208 — REGISTERED PROFESSIONAL ENGINEER

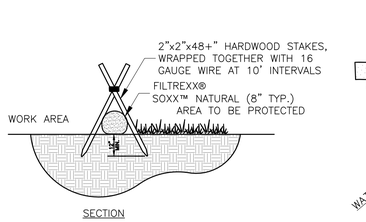
designed by: AJS | drawn by: AJS/NJM | approved by: AJS | scale:

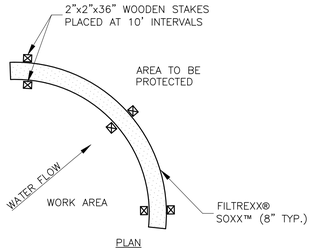
date: MAR 2020 | project no: 1127 | file name: 1127-Details.dwg

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding
Site Details

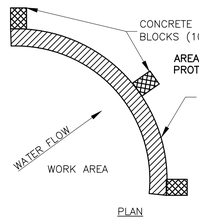
drawing no. D2

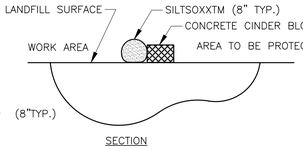
sheet: 12 of 21



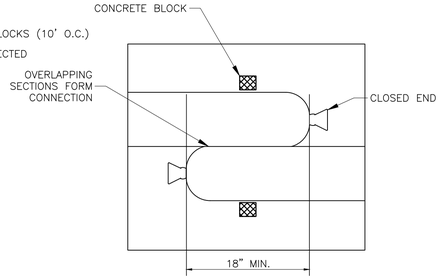


COMPOST SOCK OVER NATIVE SOIL





COMPOST SOCK OVER LANDFILL/GEOMEMBRANE



COMPOST SOCK CONNECTION/ATTACHMENT DETAIL

Compost Sock

Not to Scale

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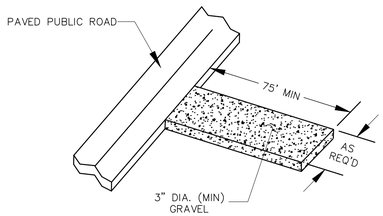


CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE – USE 3" STONE (MIN)

2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 75 FEET.

3. THICKNESS – NOT LESS THAN SIX (6) INCHES.

4. WIDTH – NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

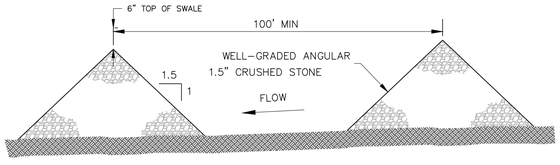
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT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

8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PERFORMED AFTER EACH RAIN.

Stabilized Construction Entrance

Not to Scale

24 / 3



NOTES:
1. PLACE CRUSHED STONE TO WITHIN 6" OF TOP OF DRAINAGE WAY.

2. FOR ACTIVE DRAINAGE OUTFLOW CHECK DAMS SHALL BE PLACED IN SERIES (100–FEET MIN) ALONG FLOW LINE TO RETAIN SEDIMENTS.

3. THE MAXIMUM HEIGHT OF THE STONE CHECK DAM SHALL NOT EXCEED 2 FEET.

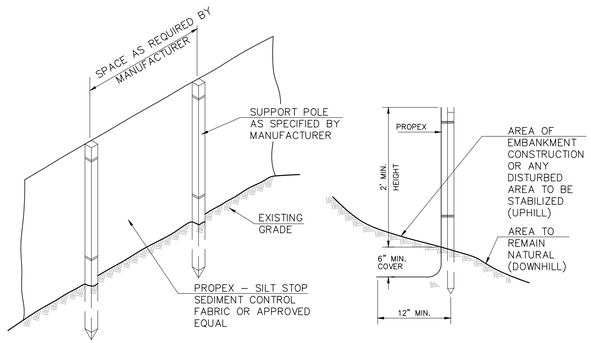
4. STONE CHECK DAMS SHALL BE CHECKED AFTER EACH RAINFALL AND REPAIRED IMMEDIATELY.

5. THE MAXIMUM SPACING BETWEEN THE DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE OVERFLOW ELEVATION OF THE DOWNSTREAM DAM.

Stone Check Dam

Not to Scale

27 / -

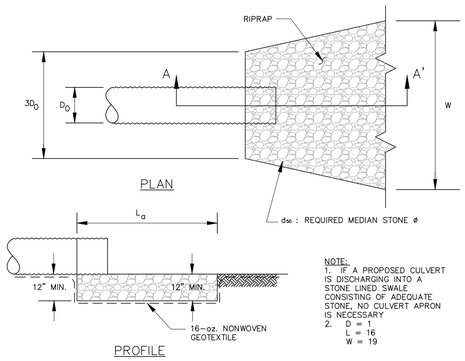


NOTE:
1. AT A MINIMUM, SILT FENCE IS TO BE INSTALLED TO PROTECT WETLAND AREAS, WATERWAYS, EXISTING AND PROPOSED DRAINAGE FEATURES, SLOPES, LAWNS AND PLANTINGS ADJACENT TO THE WORK.

Silt Fence

Not to Scale

25 / 3

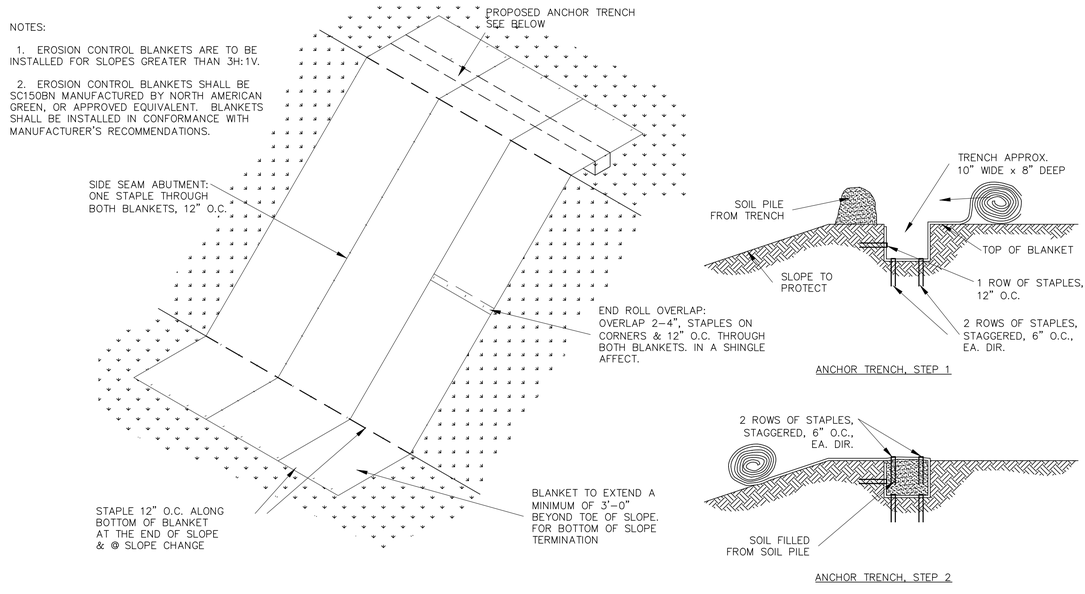


NOTE:
1. IF A PROPOSED CULVERT IS DISCHARGING INTO A STONE LINED SWALE CONSISTING OF ADEQUATE STONE, NO CULVERT APRON IS NECESSARY
2. D = 1
   L = 16
   W = 19

Stone Outlet Protection

Not to Scale

26 / 5



Erosion Control Blanket Slope Detail

Not to Scale

28 / -

Erosion Control Notes

1. PRIOR TO CONSTRUCTION AND THEREAFTER EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME.

2. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON SLOPES 3H:1V OR STEEPER WITHIN 72 HOURS OF FINAL GRADING.

3. ALL DISTURBED AREAS AND SIDE SLOPES WHICH ARE FINISH GRADED WITH NO FURTHER CONSTRUCTION TO TAKE PLACE SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS. ALL SEED, LIME AND FERTILIZER PROGRAMS SHALL CONFORM TO ALL APPLICABLE SECTIONS OF THE SPECIFICATIONS.

4. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, OR LONGER THAN TWO WEEKS AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION, SHALL BE MACHINE HAY MULCHED AND SEEDED AT THE RATE OF 2 TONS PER ACRE. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION.

5. AVOID USE OF UNDISTURBED AREAS WHENEVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL TRAVEL THE ROADBEDS OF EXISTING TRANSFER STATION AND ROADWAYS.

6. SILT FENCE AND COMPOST SOCKS SHALL BE INSTALLED & MAINTAINED WHERE SHOWN AND ADDITIONAL EROSION CONTROLS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PRIOR TO ANY ON–SITE GRADING. THEY SHOULD BE MAINTAINED DURING AND AFTER DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER AND FROM LAND UNDERGOING DEVELOPMENT. WHERE POSSIBLE NATURAL DRAINAGE WAYS SHOULD BE UTILIZED AND LEFT OPEN TO REMOVE CLEAN EXCESS SURFACE WATER. THE SILT FENCE IS TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.

7. EROSION CONTROL DEVICES SHALL BE INSPECTED WEEKLY AND AFTER EVERY 0.50–IN OF RAINFALL.

8. ALL DISTURBED AREAS SHALL HAVE A MINIMUM OF 4 INCHES OF LOAM PLACED, BEFORE BEING SEEDED AND MULCHED UNLESS OTHERWISE SHOWN. EROSION CONTROL MATTING SHALL BE PLACED ON ALL SLOPES 3H:1V OR STEEPER.

9. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE SILT FENCING AND COMPOST SOCKS ARE TO BE REMOVED. ACCUMULATED SEDIMENT DISPOSED OF IN AN ON SITE LOCATION DESIGNATED BY THE OWNER.

10 ACCUMULATED SEDIMENT FROM SWALES, THE STORMWATER POND, AND OUTLET STRUCTURE SHALL BE REMOVED ONCE CONTRIBUTING AREAS HAVE BEEN STABILIZED.

11. SILT FENCES SHALL BE MINIMUM OF 36 INCHES HIGH WITH THE BOTTOM OF THE FABRIC KEYED INTO THE GROUND (SEE DETAIL). POSTS SHALL BE OF WOOD OR STEEL.

12. THE EROSION CONTROL DEVICES SHOWN ON THE DRAWINGS REPRESENT THE MINIMUM REQUIRED FOR EROSION CONTROL. THE CONTRACTOR SHALL ADD TO THESE DEVICES ANY AND ALL MEASURES AS REQUIRED BY THE ENGINEER TO EFFECTIVELY PREVENT MIGRATION OF SEDIMENT FROM THE WORK AREA.

13. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   –BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   –A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   –A MINIMUM OF 3–IN OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN
   INSTALLED; OR
   –EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

14. IF 85% VEGETATIVE GROWTH CAN NOT BE ACHIEVED, SEED SHALL BE APPLIED BY BONDED FIBER MATRIX.

Winter Construction Notes:

1. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER, 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY UTILIZING A BONDED FIBER MATRIX OR SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. PRIOR TO WINTER SHUTDOWN OR PROJECT COMPLETION. ALL SLOPES GREATER THAN 8% SHALL BE PROTECTED WITH EROSION CONTROL BLANKETS. AREAS THAT DO NOT EXHIBIT GROWTH REQUIREMENTS IN CONFORMANCE WITH PROJECT SPECIFICATIONS SHALL BE RE–SEEDED IN THE SPRING. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

3. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3–INCHES OF CRUSHED GRAVEL.

no.	date	by	revision
3	DEC 20	AJS	Issued for Bidding
2	SEP 20	AJS	Issued for MassDEP Review
1	MAR 20	AJS	Issued for Town Conservation Commission Review

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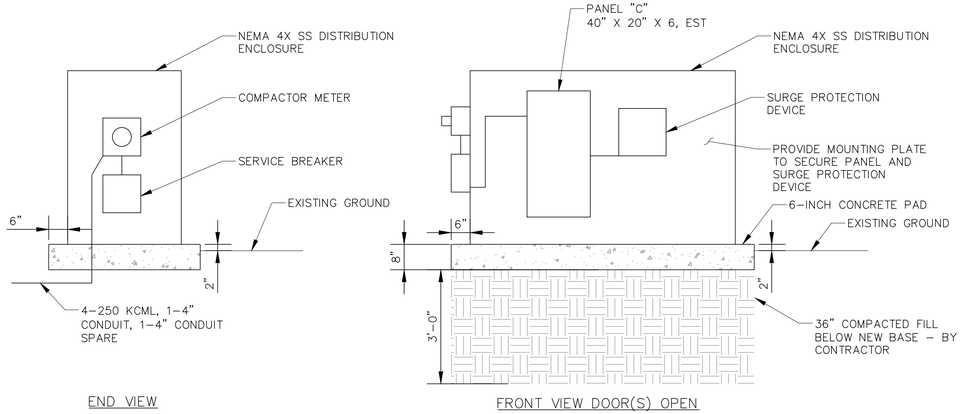
COMMONWEALTH OF MASSACHUSETTS ADAM J. SADOWSKI No. 42058 REGISTERED PROFESSIONAL ENGINEER

designed by: AJS
drawn by: AJS/NJM
approved by: AJS
scale:
date: MAR 2020
project no: 1127
file name: 1127-Details.dwg

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding
Erosion Control Details

drawing no. D3

sheet: 13 of 21

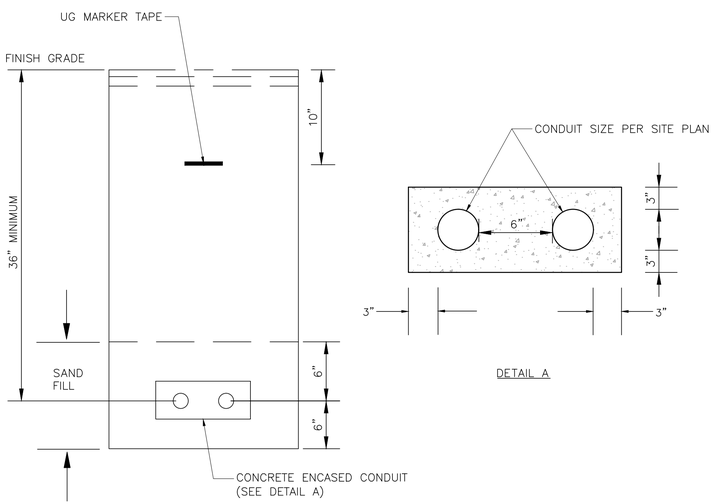


NOTES:
1. DOOR(S) OF ENCLOSURE MUST OPEN NOT LESS THAN 90° AND WHEN OPEN THERE MUST BE NO OBSTRUCTION TO OPENING DOORS OF EQUIPMENT WITHIN ENCLOSURE WITH WORKING CLEARANCES PER CODE. FINAL SIZE AND LAYOUT OF ENCLOSURE TO BE SUBMITTED FOR APPROVAL WITH SHOP DRAWINGS.

Typical Distribution Equipment for Compactors

Not to Scale

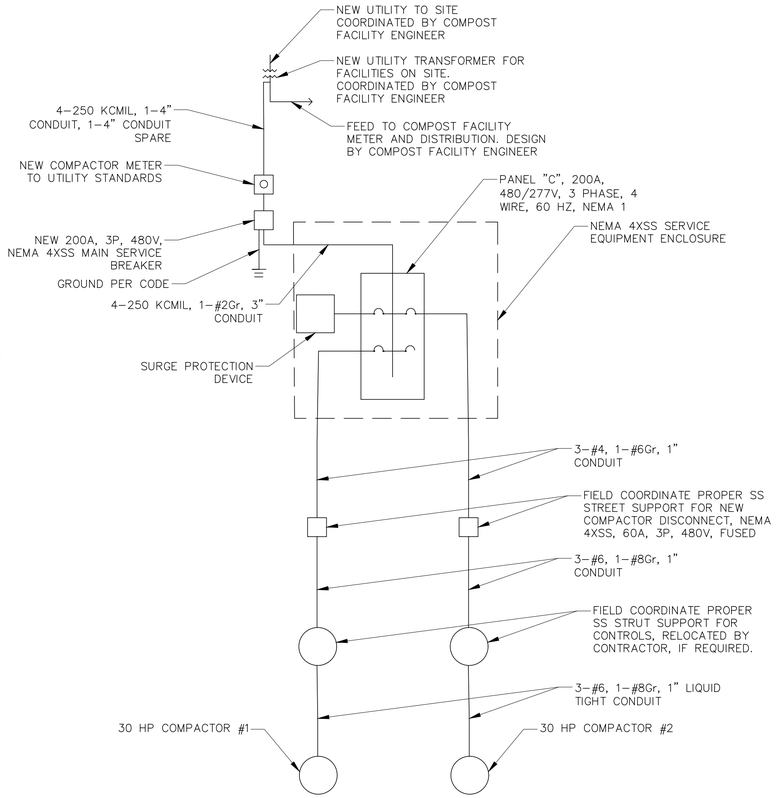
29
10



Ditch Detail

Not to Scale

30
10



Proposed Power One Line for Relocated Compactors

Not to Scale

31
-

PANEL C – SURFACE MOUNTED, 5 ¼" DEPTH
POLES: TOTAL 18, SPARE 3, SPACE 6
200 AMP M LO, 480/277 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ

CIRCUIT NO.	NO.POLES	RATING	DESCRIPTION
1,3,5	3	**	SURGE PROTECTION DEVICE
2,4,6	3	80	COMPACTOR # 2
7,9,11	3	80	COMPACTOR # 1
8	1	20	SPARE
10,12	2	20	SPARE
13–18	1	—	SPACE

NOTES:
1. PANEL MINIMUM SC RATING 35,000A @ 480V
2. PROVIDE HANDLE LOCK ON ALL CIRCUITS

** BREAKER RATING PER SPD MANUFACTURER RECOMMENDATIONS

Panel C Schedule

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-

no.	revision	date	by
3	Issued for Bidding	DEC 20	AJS
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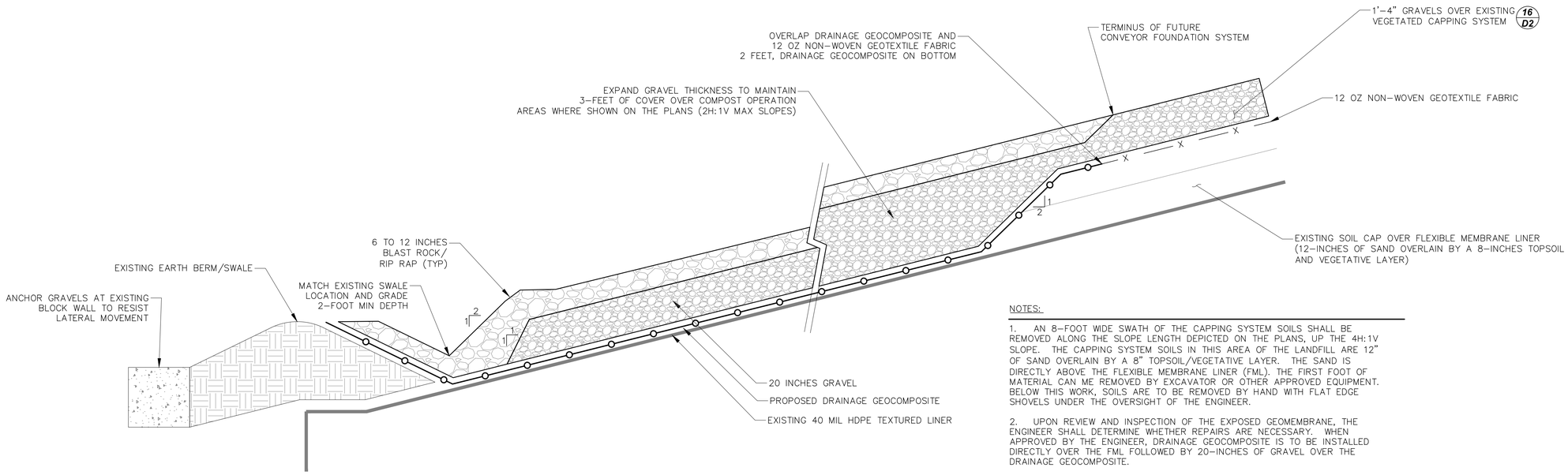
COMMONWEALTH OF MASSACHUSETTS – ADAM J. SANDAHL – No. 42268 – REGISTERED PROFESSIONAL ENGINEER

designed by: AJS
drawn by: AJS/NJM
approved by: AJS
date: MAR 2020
project no: 1127
file name: 1127-Details.dwg
scale:

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding
Electrical Details

drawing no. D4

sheet: 14 of 21



NOTES:

1. AN 8-FOOT WIDE SWATH OF THE CAPPING SYSTEM SOILS SHALL BE REMOVED ALONG THE SLOPE LENGTH DEPICTED ON THE PLANS, UP THE 4H:1V SLOPE. THE CAPPING SYSTEM SOILS IN THIS AREA OF THE LANDFILL ARE 12" OF SAND OVERLAIN BY A 8" TOPSOIL/VEGETATIVE LAYER. THE SAND IS DIRECTLY ABOVE THE FLEXIBLE MEMBRANE LINER (FML). THE FIRST FOOT OF MATERIAL CAN ME REMOVED BY EXCAVATOR OR OTHER APPROVED EQUIPMENT. BELOW THIS WORK, SOILS ARE TO BE REMOVED BY HAND WITH FLAT EDGE SHOVELS UNDER THE OVERSIGHT OF THE ENGINEER.

2. UPON REVIEW AND INSPECTION OF THE EXPOSED GEOMEMBRANE, THE ENGINEER SHALL DETERMINE WHETHER REPAIRS ARE NECESSARY. WHEN APPROVED BY THE ENGINEER, DRAINAGE GEOCOMPOSITE IS TO BE INSTALLED DIRECTLY OVER THE FML FOLLOWED BY 20-INCHES OF GRAVEL OVER THE DRAINAGE GEOCOMPOSITE.

3. RIP RAP FROM THE BLASTING OPERATIONS (OR OTHER SOURCE) TO BE USED TO STABILIZE THE GRAVEL SURFACE AROUND THE FOOTINGS. RIP RAP TO BE APPROVED BY THE ENGINEER.

Future Conveyor Foundation System

Not to Scale

33
4

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3	Issued for Bidding	DEC 20	AJS
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COMMONWEALTH OF MASSACHUSETTS ADAM J. SANDAHL No. 42038 REGISTERED PROFESSIONAL ENGINEER

designed by: AJS
drawn by: AJS/NJM
approved by: AJS
scale:
date: MAR 2020
project no: 1127
file name: 1127-Details.dwg

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Bidding
Future Conveyor Foundation System

drawing no.
D5

sheet: 15 of 21

DESIGN REQUIREMENTS:
THE DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- MASSACHUSETTS BUILDING CODE, 9TH EDITION
- 2015 INTERNATIONAL BUILDING CODE
- ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- NFPA 101 LIFE SAFETY CODE, 2009
- AISC STEEL CONSTRUCTION MANUAL, 14TH ED.
- AISC CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES, LATEST EDITION
- AWS D 1.1 STRUCTURAL WELDING CODE, LATEST EDITION

PRE-ENGINEERED METAL FABRIC TOP STRUCTURE:
1. SEE MANUFACTURER DRAWINGS, NOTES AND SPECIFICATIONS FOR REQUIREMENTS OF THE STRUCTURE ABOVE THE CONCRETE FOUNDATIONS.

DESIGN LOADS:
UNIFORMLY DISTRIBUTED LIVE LOADS
- SLABS = 250 PSF

SNOW
- GROUND SNOW LOAD (PG) = 50 PSF
- EXPOSURE FACTOR (CE) = 1.0
- IMPORTANCE FACTOR (I) = 1.0
- THERMAL ROOF FACTOR (CT) = 1.0

WIND
- BASIC WIND SPEED (V) = 127 MPH
- IMPORTANCE FACTOR (I) = 1.0 (CATEGORY II BUILDING)
- EXPOSURE CATEGORY = "C"

DEAD LOADS
- BASED ON NORMAL WEIGHT CONCRETE AND SPECIFIED BUILDING MATERIALS.

SEISMIC
- SEISMIC OCCUPANCY CATEGORY: II
- SPECTRAL RESPONSE COEFFICIENT SDS = 0.20
- SPECTRAL RESPONSE COEFFICIENT SD1 = 0.084
- SEISMIC DESIGN CATEGORY = "B"
- SITE CLASS = "C"

VEHICULAR LIVE LOAD
- VERTICAL – CAT 966M BUCKET LOADER, OPERATING WEIGHT
- LATERAL – IMPACT LOAD ON FOUNDATION WALLS 4.38 KIP PER LINEAR FOOT, OVER 8-FOOT BUCKET LENGTH.

GENERAL NOTES:
1. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE 9TH EDITION MASSACHUSETTS BUILDING CODE.

2. IF ANY OF THE WORK TO BE DONE AS SHOWN ON THE DRAWINGS DOES NOT CORRESPOND WITH THE EXISTING FIELD CONDITIONS, CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

3. DRAWINGS ARE NOT INTENDED TO BE SCALED. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS, INCLUDING UTILITIES, PRIOR TO THE START OF CONSTRUCTION. IF THERE ARE ANY DISCREPANCIES, CONSULT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

4. PLACEMENT OF SLEEVES, OUTLET BOXES, BOX-OUTS, ANCHORS, ETC., AS NEEDED FOR ELECTRICAL, MECHANICAL OR PLUMBING TRADES IS THE RESPONSIBILITY OF THE TRADE INVOLVED. NO CONDUIT PLACED IN A STRUCTURAL ELEMENT SHALL HAVE AN OUTSIDE DIAMETER GREATER THAN 1/3 THE THICKNESS OF THE ELEMENT. EXCEPT FOR CONDUIT INTERSECTIONS, THE MINIMUM CLEAR DISTANCE BETWEEN CONDUITS SHALL BE 6". ANY BOX-OUT, PENETRATION, EMBEDMENT, OR MODIFICATION OF A STRUCTURAL MEMBER NOT DEPICTED IN THE PLANS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL.

5. THE DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT SPECIFY THE MEANS AND METHODS OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS INCLUDING DESIGNING, INSTALLING, AND MAINTAINING ALL TEMPORARY SUPPORT STRUTS, SHORING, GUYING, AND BRACING AS NEEDED FOR TRANSPORT, HANDLING, AND ERECTION. THE CONTRACTOR SHALL NOT EXCEED THE DESIGN LOADINGS AS SPECIFIED ABOVE FOR STRUCTURAL MEMBERS WITHOUT REVIEW AND WRITTEN APPROVAL BY THE ENGINEER.

SUBMITTALS AND ALTERNATES
1. SUBMIT TO THE ENGINEER: SHOP DRAWINGS, OPERATION AND MAINTENANCE MANUALS, MANUFACTURERS' CERTIFICATES, PROJECT DATA, AND SAMPLES REQUIRED BY THE SPECIFICATIONS.

2. IF THE CONTRACTOR ELECTS TO SUBMIT AN ALTERNATE FOR APPROVAL BY THE ENGINEER THAT IS EQUIVALENT OR SUPERIOR, THE CONTRACTOR WILL BE RESPONSIBLE TO MAKE ALL MODIFICATIONS TO THE WORK RESULTING FROM THE USE OF THE ALTERNATE.

3. SHOP DRAWINGS ARE REQUIRED FOR ALL ELEMENTS OF THE WORK. EACH SHOP DRAWING SHALL BE ASSIGNED A SEQUENTIAL NUMBER FOR PURPOSES OF IDENTIFICATION, AND SHALL RETAIN ITS ASSIGNED NUMBER, WITH APPROPRIATE SUBSCRIPT, ON REQUIRED RESUBMISSION.

4. SHOP DRAWINGS ARE GENERALLY DEFINED AS ALL FABRICATION AND ERECTION DRAWINGS, DIAGRAMS, BROCHURES, SCHEDULES, BILLS OF MATERIAL, MANUFACTURERS DATA, SPARE PARTS LISTS, AND OTHER DATA PREPARED BY THE CONTRACTOR, SUBCONTRACTORS, SUPPLIERS, OR MANUFACTURERS WHICH ILLUSTRATE THE MANUFACTURER, FABRICATION, CONSTRUCTION, AND INSTALLATION OF THE WORK, OR A PORTION THEREOF. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER ELECTRONIC (PDF) COPIES OF SHOP DRAWINGS AND APPROVED DATA.

5. THE CONTRACTOR SHALL PROVIDE A COPY OF A COMPLETED SUBMITTAL CERTIFICATION FORM WHICH SHALL BE ATTACHED TO EVERY COPY OF EACH SHOP DRAWING. SHOP DRAWINGS SHALL SHOW THE PRINCIPAL DIMENSIONS, WEIGHT, STRUCTURAL AND OPERATING FEATURES, SPACE REQUIRED, CLEARANCES, TYPE AND/OR BRAND OF FINISH OR SHOP COAT, GREASE FITTINGS, ETC., DEPENDING ON THE SUBJECT OF THE DRAWING. WHEN IT IS CUSTOMARY TO DO SO, WHEN THE DIMENSIONS ARE OF PARTICULAR IMPORTANCE, OR WHEN SO SPECIFIED, THE DRAWINGS SHALL BE CERTIFIED BY THE MANUFACTURER OR FABRICATOR AS CORRECT FOR THE WORK.

6. NO MATERIAL OR EQUIPMENT SHALL BE PURCHASED OR FABRICATED ESPECIALLY FOR THE CONTRACT UNTIL THE REQUIRED SHOP AND WORKING DRAWINGS HAVE BEEN SUBMITTED AS PROVIDED AND REVIEWED FOR CONFORMANCE TO THE CONTRACT REQUIREMENTS. ALL SUCH MATERIALS AND EQUIPMENT AND THE WORK INVOLVED IN THEIR INSTALLATION OR INCORPORATION INTO THE WORK SHALL THEN BE AS SHOWN IN AND REPRESENTED BY THE DRAWINGS AND SPECIFICATIONS.

7. IF A SHOP DRAWING SHOWS ANY DEVIATION FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL MAKE SPECIFIC MENTION OF THE DEVIATIONS IN HIS LETTER OF TRANSMITTAL.

8. THE CONTRACTOR SHALL SUBMIT SAMPLES WHEN REQUESTED BY THE ENGINEER TO ESTABLISH CONFORMANCE WITH THE SPECIFICATIONS, AND AS NECESSARY TO DEFINE COLOR SELECTIONS AND TEXTURES AVAILABLE.

9. PRIOR TO ACCEPTING THE INSTALLATION, THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S CERTIFICATES AND WARRANTIES FOR EACH ITEM SPECIFIED.

10. SUCH MANUFACTURER'S CERTIFICATES SHALL STATE THAT THE EQUIPMENT HAS BEEN INSTALLED UNDER EITHER THE CONTINUOUS OR PERIODIC SUPERVISION OF THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE, THAT IT HAS BEEN ADJUSTED AND INITIALLY OPERATED IN THE PRESENCE OF THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE, THAT IT IS OPERATING IN ACCORDANCE WITH THE SPECIFIED REQUIREMENTS, TO THE MANUFACTURER'S SATISFACTION AND THAT THE INSTALLATION MEETS ALL CONDITIONS OF THE GUARANTEE/WARRANTY PERIOD. ALL COSTS FOR MEETING THIS REQUIREMENT SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.

11. CERTIFIED PERFORMANCE TEST DATA WILL ALSO BE SUBMITTED TO THE ENGINEER AS REQUIRED BY THE SPECIFICATIONS.

FOUNDATION NOTES:
1. FOOTINGS HAVE BEEN DESIGNED BASED ON AN ALLOWABLE BEARING PRESSURE OF 3.0 KSF.

2. ROCK SURFACES TO RECEIVE THE FOOTINGS SHALL BE LEVEL, STEPPED, ROUGHENED, DOWELED, OR ANY COMBINATION THEREOF AS DIRECTED. WHEN THE USE OF DOWELS IS ORDERED, HOLES SHALL BE DRILLED TO THE DEPTH REQUIRED AND THE DOWEL HOLES FILLED WITH EPOXY GROUT.

3. SURFACES SHALL BE CLEANED AND MAINTAINED CLEAN UNTIL THE MASONRY IS PLACED. ALL LOOSE ROCK AND FRAGMENTS SHALL BE REMOVED AS DIRECTED.

4. SEAMS SHALL BE CLEANED AND GROUTED WHEN ORDERED.

5. AFTER EACH EXCAVATION IS COMPLETED, AND PRIOR TO PLACING FORMS FOR CONCRETE, THE ENGINEER SHALL APPROVE THE DEPTH OF EXCAVATION AND THE CHARACTER OF THE FOUNDATION MATERIAL. THIS SHALL INCLUDE PROOF ROLLING ON THE EXISTING SOILS PRIOR TO THE PLACEMENT OF CRUSHED STONE BACKFILL.

6. WHERE MASONRY IS TO REST ON A ROCK SURFACE, ALL SPACE RESULTING FROM EXCAVATING ROCK WITHIN VERTICAL PLANES THROUGH THE NEAT LINES OF THE FOOTINGS SHALL BE BACKFILLED WITH CONCRETE OF THE SAME CLASS AS THAT IN THE FOOTINGS, UNLESS OTHERWISE SHOWN OR ORDERED.

7. EXCAVATIONS FOR FOOTINGS ON SOIL OR ROCK SHALL BE WITNESSED AND APPROVED BY THE ENGINEER. OVER-EXCAVATION OF LOOSE SAND OR OTHERWISE LOW STRENGTH MATERIALS MAY BE REQUIRED WHERE FOOTINGS BEAR ON SOIL, BASED ON SUBSURFACE BORINGS. ALL AREAS OF OVER-EXCAVATION SHALL BE BACKFILLED WITH AN APPROVED CRUSHED STONE AND SHALL BE COMPACTED AND TESTED AS REQUIRED BY THE SCHEDULE OF SPECIAL INSPECTIONS.

8. BEARING CONDITIONS FOR FOOTINGS AND SLABS SHALL BE AS FOLLOWS:
   A. BEARING ON SOIL – FOOTINGS AND SLABS ON SOIL SHALL BEAR ON CRUSHED STONE EXTENDING A MINIMUM OF 54 INCHES BELOW THE FINISHED FLOOR ELEVATION OF THE INTERIOR CONCRETE SLAB. SEE ELEVATION VIEWS ON SHEET 20 FOR OVER EXCAVATION LIMITS.

   B. BEARING ON BEDROCK – FOOTINGS AND SLABS ON BEDROCK SHALL BEAR ON A MINIMUM OF 12 INCHES OF COMPACTED GRAVEL FILL PLACED OVER PREPARED BEDROCK SURFACES.

CAST-IN-PLACE CONCRETE NOTES:
1. ALL CAST-IN-PLACE CONCRETE SHALL BE CONTROLLED, MIXED AND PLACED UNDER SUPERVISION OF AN APPROVED CONCRETE TESTING AGENCY.

2. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH SAND AND GRAVEL AGGREGATE. TYPE II PORTLAND CEMENT SHALL BE USED FOR ALL CONCRETE.

3. GROUT FOR SHEAR KEYS, UNDER COLUMN BASE PLATES, AND FOR SEALING UTILITY PENETRATIONS SHALL BE NON-SHRINK, NON-METALLIC GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 6000 PSI AT 3 DAYS.

4. THE CONTRACTOR SHALL SUBMIT CONCRETE AND GROUT MIX DESIGNS FOR REVIEW AND APPROVAL AT LEAST 15 DAYS PRIOR TO BATCHING, TRANSPORTING AND PLACING CONCRETE.

5. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:
   WALLS AND PIERS: 4000 PSI
   FOOTINGS: 4000 PSI
   SLABS-ON-GRADE: 4000 PSI

6. MATERIALS AND INSTALLED WORK MAY REQUIRE TESTING AND RETESTING AS DIRECTED BY ENGINEER AT ANY TIME DURING PROGRESS OF WORK. TESTS, INCLUDING RETESTING OF REJECTED MATERIALS AND INSTALLED WORK, SHALL BE DONE AT CONTRACTOR'S EXPENSE.

7. PRODUCT DATA: SUBMIT DATA FOR PROPRIETARY MATERIALS AND ITEMS, INCLUDING REINFORCEMENT AND FORMING ACCESSORIES, ADMIXTURES, PATCHING, COMPOUNDS, JOINT SYSTEMS, CURING COMPOUNDS, AND OTHERS AS REQUESTED BY ENGINEER.

8. SHOP DRAWINGS: SUBMIT DRAWINGS WHICH INDICATE REINFORCEMENT LAYOUT AND POSITION. SHOW METHOD OF SECURING REINFORCEMENT AGAINST LATERAL AND VERTICAL MOVEMENT.

9. CONCRETE MATERIALS:
   A. ALL CEMENT SHALL BE PROCURED FROM ONE MANUFACTURER. MIX DESIGNS SHALL INCLUDE MITIGATION FOR POTENTIALLY ALKALI REACTIVE AGGREGATES WHICH SHALL REDUCE THE MEAN EXPANSION TO BELOW 0.10% FOR ALKALI-SILICA REACTIVITY WHEN TESTED IN ACCORDANCE WITH ASTM C 1567. MITIGATION OF POTENTIALLY REACTIVE AGGREGATES SHALL CONSIST OF ONE OR MORE OF THE FOLLOWING METHODS: USE OF LOW ALKALI CEMENT (LESS THAN 0.6%); USE OF MINERAL ADMIXTURE; OR USE OF CHEMICAL ADMIXTURE. THE CONTRACTOR SHALL PROVIDE A FURNISH MILL AFFIDAVIT THAT ALL MATERIAL USED ON THIS WORK CONFORMS TO THE REQUIREMENTS STATED. AGGREGATES SHALL BE OF NORMAL WEIGHT. FINE OR COARSE AGGREGATES CONTAINING SPALLING-CAUSING DELETERIOUS SUBSTANCES ARE NOT PERMITTED. WATER SHALL BE POTABLE.

   B. THE LIQUID TYPE MEMBER-FORMING CURING COMPOUND SHALL COMPLY WITH ASTM C 309 TYPE I, CLASS A UNLESS OTHER TYPE IS DEEMED ACCEPTABLE BY THE ENGINEER. MOISTURE LOSS SHALL BE MORE THAN 0.055 GR/SQ CM WHEN APPLIED AT 200 SQ FT/GAL.

   C. WATER-REDUCING ADMIXTURE MAY BE USED IN CONCRETE AS REQUIRED FOR PLACEMENT AND WORKABILITY. WATER REDUCING ADMIXTURE SHALL CONFORM TO ASTM C 494, TYPE A, AND CONTAIN NOT MORE THAN 0.01% CHLORIDE IONS. THE CONTRACTOR SHALL PROVIDE ADMIXTURE'S MANUFACTURER'S WRITTEN CERTIFICATION THAT CHLORIDE ION CONTENT COMPLIES WITH SPECIFIED REQUIREMENTS. CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 0.1% CHLORIDE IONS ARE NOT PERMITTED.

   D. ADD AIR-ENTRAINING ADMIXTURE AT MANUFACTURER'S PRESCRIBED RATE TO RESULT IN CONCRETE AT A POINT OF PLACEMENT HAVING TOTAL AIR CONTENT WITH A TOLERANCE OF PLUS OR MINUS 1.5%. AIR ENTRAINMENT SHALL CONFORM TO ASTM C260-77, WITH NOT LESS THAN 4% NOR GREATER THAN 6% AIR ENTRAINMENT.

10. CONTRACTOR SHALL PLACE ALL CONCRETE IN THE DRY.

11. ALL CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS, EXCEPT WHERE SPECIFICALLY NOTED. HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS THROUGH VERTICAL CONSTRUCTION JOINTS. SHOW ALL CONSTRUCTION JOINTS ON THE SHOP DRAWINGS.

12. CONCRETE SHALL BE PLACED IN ITS FINAL LOCATION AS SOON AS POSSIBLE AFTER MIXING. SEGREGATION OF THE MIX OR DISPLACEMENT OF MATERIALS INSIDE THE FORMS WILL NOT BE PERMITTED.

13. CONCRETE SHALL BE PLACED IN LAYERS NOT TO EXCEED 12 INCHES AND PLACING INTERVALS SHALL NOT EXCEED 30 MINUTES UNLESS OTHERWISE PERMITTED. CONCRETE WHICH HAS ATTAINED A PARTIAL SET SHALL NOT BE USED.

14. WHEN PLACING SLAB OR DECK CONCRETE, CONCRETE SHALL NOT BE PLACED MORE THAN 10 FEET AHEAD OF THE FINISHING MACHINE.

15. IN THE EVENT OF UNSCHEDULED STOPPAGE OF THE WORK, VERTICAL BULKHEADS SHALL BE INSTALLED TO ENSURE A MINIMUM DEPTH OF 6 INCHES OF CONCRETE IN THE NEXT LIFT OF CONCRETE WHEN PLACEMENT IS RESUMED.

16. CARE SHALL BE TAKEN TO KEEP THE CONCRETE PRESSURE ON TIES AND FORMS WITHIN THE DESIGN LIMITS. CONCRETE SHALL NOT BE DROPPED A DISTANCE OF MORE THAN 5 FEET UNLESS CONTAINED WITHIN A TREMIE, ELEPHANT TRUNK, OR OTHER APPROVED SYSTEM.

17. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" EXCEPT AS NOTED.

18. ALL REINFORCING BARS SHALL BE GRADE 60, BLACK STEEL. WELDED WIRE FABRIC (WWF) SHALL BE BLACK STEEL WITH AN ULTIMATE TENSILE STRENGTH OF 70 KSI.

19. ALL REINFORCING SHALL BE PLACED WITH A MINIMUM CLEARANCES AS FOLLOWS:
   2" FOR EXTERIOR WALL REINFORCEMENT
   3" FOR INTERIOR WALL REINFORCEMENT
   3" FOR BOTTOM REINFORCEMENT IN FOOTINGS
   2" FOR SLAB TOP REINFORCEMENT
   1" FOR BOTTOM REINFORCEMENT IN SUPPORTED SLABS AND BEAMS

20. ALL SPLICES SHALL BE TENSION SPLICES, CLASS B, AS PER THE ACI CODE UNLESS OTHERWISE NOTED (UON).

21. EMBEDMENTS FOR DOWELS, ETC, SHALL BE THE DEVELOPMENT LENGTH IN TENSION , AS PER THE ACI CODE UON.

22. WHERE MECHANICAL OR WELDED SPLICES ARE USED, SPLICES SHALL BE STAGGERED AND SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH.

23. CONCRETE CAST ON SLOPED SURFACES SHALL BEGIN AT THE LOWEST ELEVATION AND CONTINUE MONOLITHICALLY TOWARD THE HIGHEST ELEVATION.

24. CONCRETE SHALL CURE IN THE FORMWORK FOR AT LEAST SEVEN DAYS OR ATTAIN AT LEAST 80% OF ITS 28-DAY COMPRESSIVE STRENGTH PRIOR TO THE REMOVAL OF FORMS. ALTERNATIVELY, FORMS MAY BE REMOVED AT 3 DAYS, FOLLOWED BY IMMEDIATE COVERING WITH WET BURLAP TO BE KEPT WET FOR THE REMAINDER OF THE 7 DAY PERIOD.

25. WATER REPELLENT (SILANE-SILOXANE), SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES AT A RATE OF 125 SF/GALLON.

26. PLACE 1/2" THICK CLOSED CELL NEOPRENE SPONGE RUBBER WITH AT LEAST 50% COMPRESSIBILITY AND 95% RECOVERY CAPACITY BETWEEN CAST IN PLACE JOINTS. SPONGE RUBBER SHALL BE 1/2" BELOW EXPOSED SURFACE. SEALANT SHALL BE ONE COMPONENT LOW-MODULUS SILICONE SEALANT SUCH AS SIKAFLEX 1A OR APPROVED EQUAL. CONTRACTOR SHALL MAINTAIN QUALIFIED PERSONNEL WHO HAVE RECEIVED PRODUCT TRAINING FROM THE MANUFACTURER'S REPRESENTATIVE.

FOUNDATION BACKFILL
1. THE CONTRACTOR NOTIFY THE OWNER AND ENGINEER AT LEAST 2 DAY IN ADVANCE OF WHEN COMPACTION TESTING WILL BE REQUIRED.

2. POST PLACEMENT TESTING
   A. TRENCH AND EXCAVATION BACKFILLING SHALL BE PREPARED USING THE BACKFILL TECHNIQUE EMPLOYED BY THE CONTRACTOR THROUGHOUT THE REST OF THE PROJECT. NO SPECIAL OR ADDITIONAL PREPARATION WILL BE ALLOWED.

   B. DETERMINE IN-PLACE DENSITY IN ACCORDANCE WITH ASTM D2922-05 OR BY OTHER METHODS AS APPROVED BY THE ENGINEER.

   C. COMPACTION TESTS SHALL BE MADE IN ACCORDANCE WITH THE SCHEDULE OF SPECIAL INSPECTIONS.

   D. SHOULD COMPACTION TESTS FAIL TO MEET THE SPECIFIED DENSITIES, THE CONTRACTOR SHALL MODIFY BACKFILL METHODS AS NECESSARY TO OBTAIN PASSING RESULTS. THE MODIFIED METHOD SHALL BE USED FROM THAT POINT ON.

MINIMUM SPLICE AND DEVELOPMENT LENGTH SCHEDULE
(UNLESS OTHERWISE SHOWN ON DRAWINGS)

f'c=4000 PSI	BAR SIZE (60 KSI)		#3	#4	#5	#6	#7	#8	#9	#10	#11
	CLASS 'B' TENSION SPLICE LENGTH (1.3*Ld)	TOP BARS	25"	33"	41"	49"	71"	81"	91"	101"	111"
		OTHER BARS	19"	25"	31"	37"	54"	62"	70"	78"	85"
	DEVELOPMENT LENGTH & ALL OTHER SPLICE LENGTHS (Ld)	TOP BARS	19"	25"	31"	37"	54"	62"	70"	78"	85"
		OTHER BARS	15"	19"	24"	29"	42"	48"	54"	60"	66"

ABBREVIATIONS

(E)	EXISTING
(N)	NEW
ADDL	ADDITIONAL
ARCH	ARCHITECTURAL
BOT	BOTTOM
CJ	CONTRACTION JOINT
CL	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
DIA	DIAMETER
DN	DOWN
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FTG	FOOTING
F.F.	FAR FACE
GALV	GALVANIZED
HP	HIGH POINT
IF	INSIDE FACE
INT	INTERIOR
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT

ABBREVIATIONS (CONTINUED)

MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
NEG	NEGATIVE
NO	NUMBER
NTS	NOT TO SCALE
NF	NEAR FACE
OC	ON CENTER
OF	OUTSIDE FACE
OPNG	OPENING
PC	PIECE
PL	PLATE
REINF	REINFORCEMENT
SER	STRUCTURAL ENGINEER OF RECORD
SQ	SQUARE
SLBB	SHORT LEG BACK TO BACK
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
STD	STANDARD
STRUC	STRUCTURAL
T&B	TOP AND BOTTOM
TBD	TO BE DETERMINED
TOS	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
W, W/	WITH
WWF	WELDED WIRE FABRIC

no.	revision	date	by
1	Issued for Bidding	DEC 20	AJS

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COMMONWEALTH OF MASSACHUSETTS
STEPHEN E MCNALLY
STRUCTURAL
No 34121
REGISTERED PROFESSIONAL ENGINEER

12/16/2020

designed by: LBK
drawn by: LBK
approved by: SEM
scale: 1" = 1'-0" (0, 1', 2')
date: DEC 2020
project no: 1127
file name: 1127-Foundations.dwg

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Construction
Structural Notes

drawing no. 16
sheet: 16 of 21

GROUP	ITEM	CONTINUOUS OR PERIODIC INSPECTION	AGENCY
SHALLOW FOUNDATIONS	INSPECT SOILS BELOW FOOTINGS FOR ADEQUATE BEARING CAPACITY AND CONSISTENCY WITH GEOTECHNICAL REPORT	P	PE/GE
	INSPECT REMOVAL OF UNSUITABLE MATERIAL AND PREPARATION OF SUBGRADE PRIOR TO PLACEMENT OF CONTROLLED FILL.	P	PE/GE
CONTROLLED STRUCTURAL FILL	PERFORM SIEVE TESTS (ASTM D422 & D1140) AND MODIFIED PROCTOR TESTS (ASTM D1557) FOR EACH SOURCE OF FILL MATERIAL	P	PE/GE
	INSPECT PLACEMENT, LIFT THICKNESS, AND COMPACTION OF CONTROLLED FILL	P	PE/GE
	TEST DENSITY OF EACH LIFT BY NUCLEAR METHODS (ASTM D2922)	P	PE/GE
	VERIFY EXTENT AND SLOPE OF FILL PLACEMENT	P	PE/GE
	VERIFY THAT EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	P	PE/GE
CONTROLLED LOW STRENGTH MATERIALS (FLOW FILL)	SAMPLING CLSM DELIVERED TO PROJECT SITE IN ACCORDANCE WITH ASTM D5971.	N/A	ACI–CCI RCCSI
	TESTING FOR CONSISTENCY OF CLSM DELIVERED TO PROJECT SITE IN ACCORDANCE WITH ASTM D6103	N/A	ACI–CCI RCCSI
	TESTING FOR UNIT WEIGHT OF CLSM DELIVERED TO PROJECT SITE IN ACCORDANCE WITH ASTM D6023	N/A	ACI–CCI RCCSI
	TESTING FOR IN–PLACE DENSITY AND STRENGTH OF CLSM DELIVERED TO PROJECT SITE IN ACCORDANCE WITH ASTM D4832.	N/A	ACI–CCI RCCSI
CAST–IN–PLACE CONCRETE	REVIEW CONCRETE BATCH TICKETS AND VERIFY COMPLIANCE WITH APPROVED MIX DESIGN. VERIFY THAT WATER ADDED AT THE SITE DOES NOT EXCEED THAT ALLOWED BY MIX DESIGN	C	ACI–CCI RCCSI
	REVIEW MILL CERTIFICATES FOR CONFORMANCE WITH SPECIAL REQUIREMENTS	C	ACI–CCI ICC–RCSI
	INSPECT SIZE, SPACING, COVER, POSITIONING, AND GRADE OF REINFORCING STEEL. VERIFY THAT REINFORCING BARS ARE FREE OF FORM OIL OR OTHER DELETORIOUS MATERIALS. INSPECT BAR LAPS AND MECHANICAL SPLICES. VERIFY THAT BARS ARE ADEQUATELY TIED AND SUPPORTED ON CHAIRS OR BOLSTERS	P	ACI–CCI / RCCSI
	VISUALLY INSPECT ALL REINFORCING STEEL WELDS. VERIFY WELDABILITY OF REINFORCING STEEL. INSPECT PREHEATING OF STEEL WHEN REQUIRED	C	AWS/CWI
	INSPECT SIZE, POSITIONING, AND EMBEDMENT OF ANCHOR RODS. INSPECT CONCRETE PLACEMENT AND CONSOLIDATION AROUND ANCHORS	C	PE/SE
	INSPECT PLACEMENT OF CONCRETE. VERIFY THAT CONCRETE CONVEYANCE AND DEPOSITION AVOIDS SEGREGATION OR CONTAMINATION.	C	ACI–CCI / RCCSI
	TEST CONCRETE COMPRESSIVE STRENGTH (ASTM C31 & C39), SLUMP (ASTM C143), AIR ENTRAINMENT (ASTM C231 OR C173) AND TEMPERATURE (ASTM C1064)	P	ACI–CCI / RCCSI
	REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; B. INSPECT SINGLE–PASS FILLET WELDS, MAXIMUM 5/16"; AND C. INSPECT ALL OTHER WELDS	P P C	ACI–CCI / RCCSI
	INSPECT ANCHORS POST–INSTALLED IN HARDENED CONCRETE MEMBERS. A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED LOADS B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	C P	ACI–CCI / RCCSI
	INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	C	ACI–CCI / RCCSI
	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURES AND TECHNIQUES.	P	ACI–CCI / RCCSI
	REVIEW PLANT CERTIFICATION AND QUALITY CONTROL PROCEDURES; REVIEW PROCEDURES FOR COMPLETENESS AND ADEQUACY.	P	ACI–CCI ICC–RCSI
	INSPECT CONCRETE BATCHING OPERATIONS AND VERIFY COMPLIANCE WITH APPROVED MIX DESIGN.	P	ACI–CCI ICC–RCSI
	INSPECT MATERIAL CERTIFICATIONS.	P	ACI–CCI ICC–RCSI
	INSPECT SIZE, SPACING, POSITION, AND GRADE OF REINFORCING STEEL. VERIFY REINFORCING BARS ARE FREE OF FORM OIL OR OTHER MATERIALS.	P	ACI–CCI ICC–RCSI
	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	P	

GROUP	ITEM	CONTINUOUS OR PERIODIC INSPECTION	AGENCY
PRECAST CONCRETE	INSPECT PRESTRESSED TENDON PLACEMENT, STRESSING, GROUTING, AND PROTECTION OF PRESTRESSING TENDONS.	N/A	ICC–PCSI
	INSPECT CONNECTIONS AND EMBEDDED ITEMS FOR COMPLIANCE WITH SHOP DRAWINGS AND CONTRACT DOCUMENTS DURING PERIODIC PLANT VISITS.	N/A	ACI–CCI
	INSPECT FORM SIZES FOR ACCURACY WITH CONCRETE SHOP DRAWINGS AND CONTRACT DOCUMENTS.	N/A	ACI–CCI
	INSPECT PLACEMENT OF CONCRETE. VERIFY CONCRETE CONVEYANCE AND DEPOSITING AVOIDS SEGREGATION OR CONTAMINATION. VERIFY CONCRETE IS PROPERLY CONSOLIDATED.	N/A	ACI–CCI ICC–RCSI
	TEST CONCRETE COMPRESSIVE STRENGTH, SLUMP, AIR CONTENT, AND TEMPERATURE.	N/A	ACI–CFTT / ACI–STT
	INSPECT CURING, COLD WEATHER PROTECTION, AND HOT WEATHER PROTECTION PROCEDURES.	N/A	ACI–CCI ICC–RCSI
	INSPECT ERECTION OF PRECAST CONCRETE INCLUDING MEMBER CONFIGURATION, CONNECTIONS, WELDING, AND GROUTING. PROVIDE ULTRASONIC TESTING OF 25% MINIMUM OF WELDS.	N/A	PE/SE
	VERIFY IN–SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST–TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	N/A	PE/SE
MASONRY	REVIEW TEST REPORTS AND MATERIALS DOCUMENTATION FOR CONFORMANCE TO CONSTRUCTION DOCUMENTS.	N/A	ICC–SMSI
	INSPECT PROPORTIONING, MIXING AND RETEMPERING OF MORTAR AND GROUT.	N/A	ICC–SMSI
	INSPECT SIZE, LAYOUT, BONDING AND PLACEMENT OF MASONRY UNITS	N/A	ICC–SMSI
	INSPECT CONSTRUCTION OF MORTAR JOINTS INCLUDING TOOLING AND FILLING OF HEAD JOINTS	N/A	ICC–SMSI
	INSPECT PLACEMENT, POSITIONING AND LAPPING OF REINFORCING STEEL, INSPECT WELDING OF REINFORCING STEEL.	N/A	ICC–SMSI
	INSPECT PLACEMENT AND CONSOLIDATION OF GROUT. INSPECT MASONRY CLEAN–OUTS FOR HIGH LIFT GROUTING.	N/A	ICC–SMSI
	INSPECT COLD WEATHER PROTECTION HOT WEATHER PROTECTION PROCEDURES. VERIFY THAT WALL CAVITIES ARE PROTECTED AGAINST PRECIPITATION.	N/A	ICC–SMSI
	TEST COMPRESSIVE STRENGTH OF MORTAR AND GROUT CUBE SAMPLES (ASTM C780). TEST COMPRESSIVE STRENGTH OF MASONRY PRISMS (ASTM C1314.	N/A	ICC–SMSI
	INSPECT SIZE, LOCATION, SPACING AND EMBEDMENT OF DOWELS, ANCHORS AND TIES.	N/A	ICC–SMSI
	PROVIDE CONTINUOUS AND/OR PERIODIC INSPCTIONS DURING ALL OPERATIONS PER TABLE 1704.5.1 (LEVEL1) OF THE INTERNATIONAL BUILDING CODE.	N/A	ICC–SMSI
STRUCTURAL STEEL	REVIEW SHOP FABRICATION AND QUALITY CONTROL PROCEDURES	N/A	AWS AISC–SSI ICC–SWSI
	REVIEW CERTIFIED MILL TEST REPORTS AND IDENTIFICATION MARKING ON WIDE–FLANGE SHAPES, HIGH STRENGTH BOLTS, NUTS AND WELDING ELECTRODES	N/A	AWS AISC–SSI ICC–SWSI
	INSPECT INSTALLATION AND TIGHTENING OF HIGH STRENGTH BOLTS. VERIFY THAT SPLINES HAVE SEPARATED FROM TENSION CONTROL BOLTS. VERIFY PROPER TIGHTENING SEQUENCE	N/A	AWS AISC–SSI ICC–SWSI
	CONTINUOUS INSPECTION IN SLIP–CRITICAL CONNECTIONS. INSPECT PER SECTION 9 OF RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OF A490 BOLTS	N/A	AWS AISC–SSI ICC–SWSI
	VISUALLY INSPECT ALL WELDS. INSPECT PRE–HEAT, POST HEAT, AND SURFACE PREPARATION BETWEEN PASSES FIELD FILLET WELDS: 100% VISUAL, 15% WITNESS SHOP FILLET WELDS: 25% VISUAL, 5% WITNESS FULL PENETRATION: 100% ULTRASONIC TESTING PROVIDE CONTINUOUS INSPECTION OF ALL COMPLETE AND PARTIAL PENETRATION GROOVE WELDS	N/A	AWS–CWI ASNT
	INSPECT STEEL FRAME FOR COMPLIANCE WITH STRUCTURAL DRAWINGS INCLUDING BRACING, MEMBER CONFIGURATION, AND CONNECTION DETAILS	N/A	AWS–CWI
	INSPECT WELDING AND SIDE–LAP FASTENING OF METAL ROOF AND FLOOR DECK	N/A	PE/SE
	CONTINUOUS MONITORING OF TESTS AND INSPECTIONS IS TO ASSURE CONFORMANCE TO CONSTRUCTION DOCUMENTS; NOTIFY SER OF ANY DISCREPANCIES IMMEDIATELY	N/A	PE/SE

SPECIAL INSPECTION REQUIREMENTS:

1. ITEMS CHECKED WITH A 'C' DENOTES CONTINUOUS INSPECTION BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY.

1. ITEMS CHECKED WITH A 'P' DENOTES PERIODIC INSPECTION BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY.

2. MATERIAL SAMPLING AND TESTING REQUIREMENTS SHALL BE SPECIFIED IN THE STRUCTURAL GENERAL NOTES AND/OR PROJECT SPECIFICATIONS.

3. ALL INSPECTION REPORTS AND MATERIAL TESTING REPORTS SHALL BE SUBMITTED TO OWNER AND SER.

4. MATERIALS WHICH FAIL TO MEET THE REQUIREMENTS ESTABLISHED IN STRUCTURAL NOTES AND PROJECT SPECIFICATIONS AND HAVE NOT BEEN APPROVED BY THE SER SHALL NOT BE USED.

5. SPECIAL INSPECTIONS SHALL APPLY TO ALL PROJECT COMPONENTS.

6. ALL WELDS SHALL BE VISUALLY INSPECTED.

7. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED ULTRASONICALLY OR BY USE APPROVED BY SER. CONTRACTOR MUST PROVIDE UNIMPEDED ACCESS FOR INSPECTOR TO PROVIDE VISUAL INSPECTION DURING WELDING.

8. INSPECTIONS FOR PRE–FABRICATED CONSTRUCTION SHALL ALSO COMPLY WITH TABLE BELOW.

9. "PERIODIC INSPECTION" DENOTES A SPECIAL INSPECTOR PERIODICALLY OBSERVES ALL WORK FOR SAID ITEM IN TIME INTERVALS REQUIRED TO ENSURE WORK HAS BEEN COMPLETED IN COMPLIANCE WITH PROJECT NOTES AND/OR SPECIFICATIONS.

10. "CONTINUOUS INSPECTION" DENOTES A SPECIAL INSPECTOR IS CONTINUOUSLY OBSERVING ALL WORK FOR SAID ITEM TO ENSURE WORK HAS BEEN COMPLETED IN COMPLIANCE WITH PROJECT NOTES AND/OR SPECIFICATIONS.

11. "P1" DENOTES IF ALL REQUIREMENTS ARE MET, ONLY ONE INSPECTION IS REQUIRED.

12. "P2" DENOTES WHILE STEEL ERECTION OPERATIONS ARE ONGOING, DAILY INSPECTIONS SHALL BE PERFORMED UNLESS NOTED OTHERWISE.

13. SEE STATEMENT OF SPECIAL INSPECTIONS FOR AGENCY ACRONYM KEY.

14. PE/SE STRUCTURAL ENGINEER IS A LICENSED SE OR PE SPECIALIZING IN THE DESIGN OF BUILDING STRUCTURES.

15. PE/GE GEOTECHNICAL ENGINEER IS A LICENSED PE SPECIALIZING IN SOIL MECHANICS AND FOUNDATIONS

16. EITENGINEER–IN–TRAINING IS A GRADUATE ENGINEER WHO HAS PASSED THE FUNDAMENTALS OF ENGINEERING EXAMINATION

17. AMERICAN CONCRETE INSTITUTE (ACI) CERTIFICATION

ACI–CFTT CONCRETE FIELD TESTING TECHNICIAN–GRADE 1
ACI–CCI CONCRETE CONSTRUCTION INSPECTOR
ACI–LTT LABORATORY TESTING TECHNICIAN–GRADE 1&2
ACI–STT STRENGTH TESTING TECHNICIAN

18. AMERICAN WELDING SOCIETY (AWS) CERTIFICATION

AWS–AWI ASSOCIATE WELDING INSPECTOR
AWS–CWI CERTIFIED WELDING INSPECTOR
AWS/AISC–SSI CERTIFIED STRUCTURAL STEEL INSPECTOR

19. AMERICAN SOCIETY OF NON–DESTRUCTIVE TESTING (ASNT) CERTIFICATION

ASNT NON–DESTRUCTIVE TESTING TECHNICIAN–LEVEL II OR III.

20. INTERNATIONAL CODE COUNCIL (ICC) CERTIFICATION

ICC–SMSI STRUCTURAL MASONRY SPECIAL INSPECTOR
ICC–SWSI STRUCTURAL STEEL AND WELDING SPECIAL INSPECTOR
ICC–SFSI SPRAY–APPLIED FIREPROOFING SPECIAL INSPECTOR
ICC–PCSI PRESTRESSED CONCRETE SPECIAL INSPECTOR
ICC–RCSI REINFORCED CONCRETE SPECIAL INSPECTOR

21. STEEL DECK INSTITUTE (SDI) CERTIFICATION

SDI–QAI QUALITY ASSURANCE INSPECTOR
SDI–QCI QUALITY CONTROL INSPECTOR

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COMMONWEALTH OF MASSACHUSETTS
STEPHEN E MCNALLY
STRUCTURAL
No 34121
REGISTERED PROFESSIONAL ENGINEER

12/16/2020

designed by: LBK
drawn by: LBK
approved by: SEM
scale: 1" Scale: 1" = 1'–0" 0 2'
date: DEC 2020
project no: 1127
file name: 1127-Str. Special Insp.

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Construction
Special Inspections (1 of 2)

drawing no. 17
sheet: 17 of 21

GROUP	ITEM	CONTINUOUS OR PERIODIC INSPECTION	AGENCY
DEEP DRIVEN/DRILLED FOUNDATION ELEMENTS	VERIFY ELEMENT MATERIALS, SIZES, AND LENGTHS COMPLY WITH CONSTRUCTION DOCUMENTS AND GEOTECHNICAL REPORT.	N/A	PE/GE
	DETERMINE CAPACITIES OF TEST PILES AND CONDUCT ADDITIONAL LOAD TEST AS REQUIRED.	N/A	PE/GE
	OBSERVE DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.	N/A	PE/GE
	VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS, AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT.	N/A	PE/GE
	INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	N/A	PE/GE
	CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLCIABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	N/A	PE/GE
	FOR CONCRETE ELEMENTS, PERFORM TEST AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC SECTION 1705.3	N/A	PE/GE
	FOR STEEL ELEMENTS, PERFORM ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC SECTION 1705.2	N/A	PE/GE
	FOR CONCRETE ELEMENTS AND CONCRETE-FILLED ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC SECTION 1705.3.	N/A	PE/GE
	FOR SPECIALTY ELEMENTS, PERFORM ADDITIONAL INSPECTIONS AS DETERMINED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.	N/A	PE/GE
COLD FORMED FLOOR AND ROOF DECK	VERIFY COMPLIANCE OF DECK MATERIALS AND ACCESSORIES WITH CONSTRUCTION DOCUMENTS.	N/A	SDI-QAI/QCI
	VERIFY COMPLIANCE OF DECK AND ACCESSORY INSTALLATION WITH CONSTRUCTION DOCUMENTS.	N/A	SDI-QAI/QCI
	INSPECT MATERIAL CERTIFICATIONS.	N/A	SDI-QAI/QCI
	INSPECT INSTALLATION OF DECK WELDS TO FRAMING	N/A	AWS-AWI
COLD FORMED / LGMF FRAMING	REVIEW FABRICATOR'S QUALITY CONTROL PROCEDURES. REVIEW PROCEDURES FOR COMPLETENESS AND ADEQUACY. (SPECIAL INSPECTIONS OF FABRICATOR ARE NOT REQUIRED IF FABRICATOR IS APPROVED PER IBC SECTION 1704.2.5)	N/A	PE/SE
	REVIEW MATERIAL CERTIFICATIONS FOR CONFORMANCE TO CONTRACT DOCUMENTS	N/A	PE/SE
	INSPECT IN-PLANT FABRICATION OR ON-SITE FABRICATION (SPECIAL INSPECTIONS OF FABRICATOR ARE NOT REQUIRED IF FABRICATOR IS APPROVED PER IBC SECTION 1704.2.5)	N/A	PE/SE
	VERIFY TYPE, SIZE, QUANTITY, LOCATION, DETAILS, AND CONNECTIONS OF FRAMING MEMBERS CONFORM TO SER APPROVED SUBMITTALS AND CONTRACT DOCUMENTS.	N/A	PE/SE
	CHECK WELDER'S QUALIFICATIONS. VERIFY FASTENERS CONFORM TO SER APPROVED SUBMITTALS AND CONTRACT DOCUMENTS. VERIFY FASTENERS ARE INSTALLED TIGHTLY.	N/A	AWS-CWI
	VERIFY FASTENER TYPE AND INSTALLATION PROCEDURES. VERIFY FASTENERS CONFORM TO SER APPROVED SUBMITTALS AND CONTRACT DOCUMENTS. VERIFY FASTENERS ARE INSTALLED TIGHTLY.	N/A	PE/SE
ARCHITECTURAL SYSTEMS / EXTERIOR INSULATION AND FINISH SYSTEMS	VERIFY MATERIALS CONFORM WITH CONSTRUCTION DOCUMENTS.	P	EDI-EIFS
	VERIFY CONDITION OF SUBSTRATE CONFORMS WITH CONSTRUCTION DOCUMENTS.	P	EDI-EIFS
	VERIFY APPLICATION OF COATINGS, TAPES, SEALANTS, AND CAULKING CONFORMS WITH CONSTRUCTION DOCUMENTS AND MANUFACTURER'S WRITTEN INSTRUCTIONS.	P	EDI-EIFS
	VERIFY FLASHING SYSTEMS CONFORM WITH CONSTRUCTION DOCUMENTS AND MANUFACTURER'S WRITTEN RECOMMENDATIONS.	P	EDI-EIFS
	VERIFY PANEL FASTENERS CONFORM TO SER APPROVED SUBMITTALS AND CONTRACT DOCUMENTS.	P	EDI-EIFS / PE/SE
GEOFOAM SYSTEMS	VERIFY MATERIALS CONFORM WITH CONSTRUCTION DOCUMENTS.	N/A	PE/GE
	VERIFY CONDITION OF SUBSTRATE CONFORMS WITH CONSTRUCTION DOCUMENTS.	N/A	PE/GE
	VERIFY PLUMB, LEVEL AND INSTALLATION TOLERENCES CONFORM TO CONSTRUCTION DOCUMENTS	N/A	PE/GE
	VERIFY GEOTECHNICAL FABRIC INSTALLATION CONFORMS TO CONSTRUCTION DOCUMENTS	N/A	PE/GE
	VERIFY GEOFOAM FASTENERS CONFORM TO CONTRACT DOCUMENTS.	N/A	PE/GE

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COMMONWEALTH OF MASSACHUSETTS
STEPHEN E MCNALLY
STRUCTURAL
No 34121
REGISTERED PROFESSIONAL ENGINEER

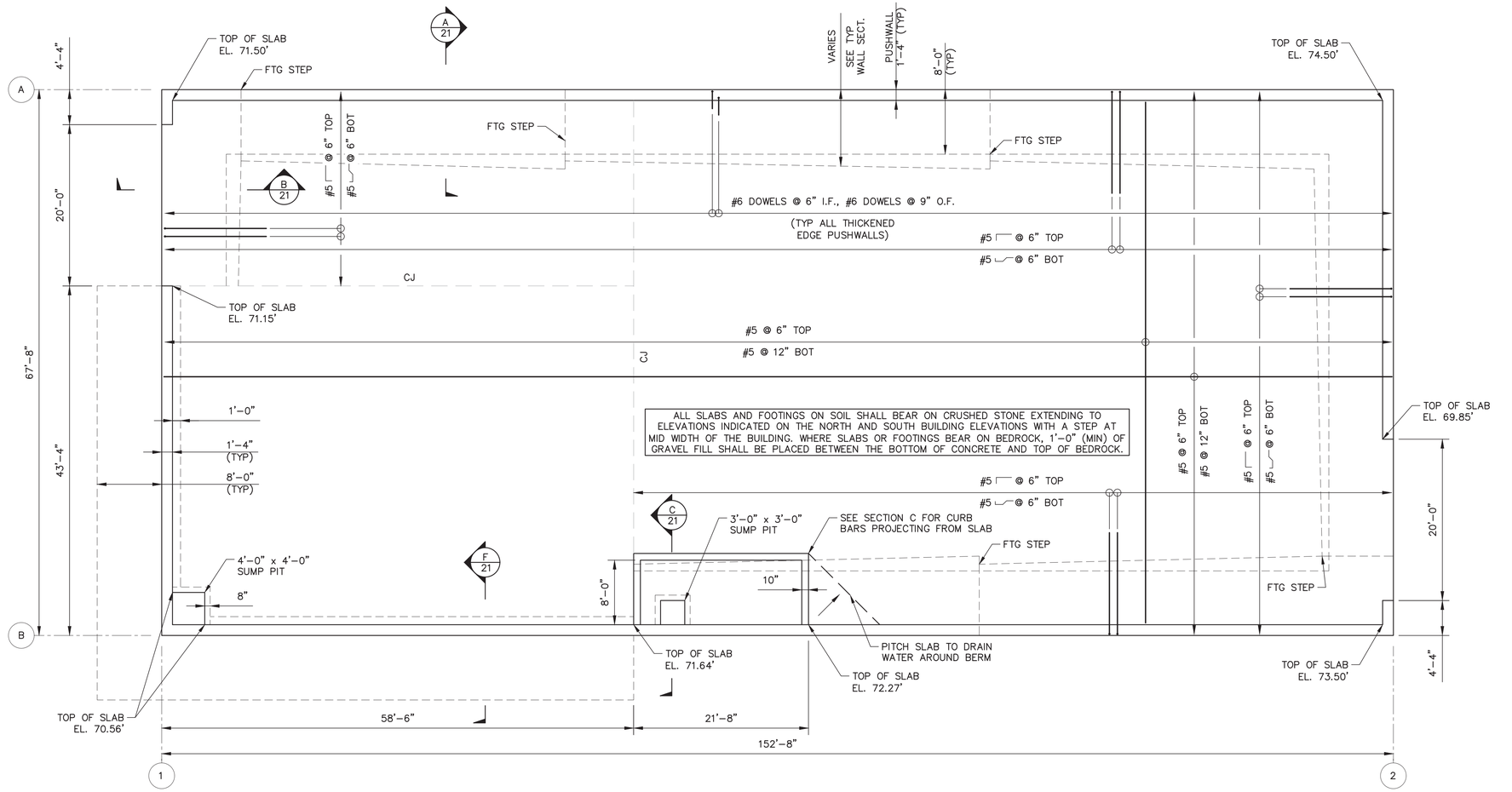
12/16/2020

designed by: LBK
drawn by: LBK
approved by: SEM
date: DEC 2020
project no: 1127
file name: 1127-Str. Special Insp.
scale: 1" = 1'-0"

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Construction
Special Inspections
(2 of 2)

drawing no. 18

sheet: 18 of 21



Plan

Scale: 1/8" = 1'-0"

GENERAL NOTES

1. FABRIC TOP STRUCTURE TO BE SUPPORTED ON FOUNDATION (PUSH) WALLS. PROVIDE A SMOOTH AND LEVEL SURFACE AT ALL BASE PLATE LOCATIONS. COLUMN LINES SHOWN DO NOT REFLECT LOCATIONS OF FABRIC STRUCTURE COLUMNS/SUPPORTS. SEE FABRIC TOP STRUCTURE PLANS FOR BASE PLATE LOCATIONS.
2. DO NOT LOCATE WALL CONTROL OR CONSTRUCTION JOINTS WITHIN A DISTANCE OF 3 FEET FROM CENTERLINE OF FABRIC TOP STRUCTURE BASE PLATES.
3. THE NOTATION "EJ" AND "CJ" INDICATE LOCATIONS OF EXPANSION AND CONSTRUCTION / CONTRACTION JOINTS. SEE SHEET S-5 FOR ADDITIONAL FOUNDATION DETAILS.
4. WALL CONTROL AND EXPANSION JOINTS ARE SHOWN ON THE PLAN VIEW ON THIS SHEET.
5. WHEN PLACED ON NATIVE SOIL, FOOTINGS AND SLABS SHALL BEAR ON UNDISTURBED, PROOF ROLLED ORIGINAL SURFACE. PROOF ROLLING SHALL BE OBSERVED BY THE ENGINEER.
6. UNSUITABLE SOILS, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND BACKFILLED WITH GRAVEL (MASS DOT ITEM 151). BACKFILL SHALL BE COMPACTED TO MIN. 95% STANDARD PROCTOR DENSITY, UNLESS OTHERWISE NOTED. EXCAVATIONS SHALL INCLUDE AREAS UNDER SLABS AND FOOTINGS AND SHALL EXTEND OUTWARD FROM FOOTING LIMITS AT 1H:2V.

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STEPHEN E MCNALLY STRUCTURAL No 34121 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

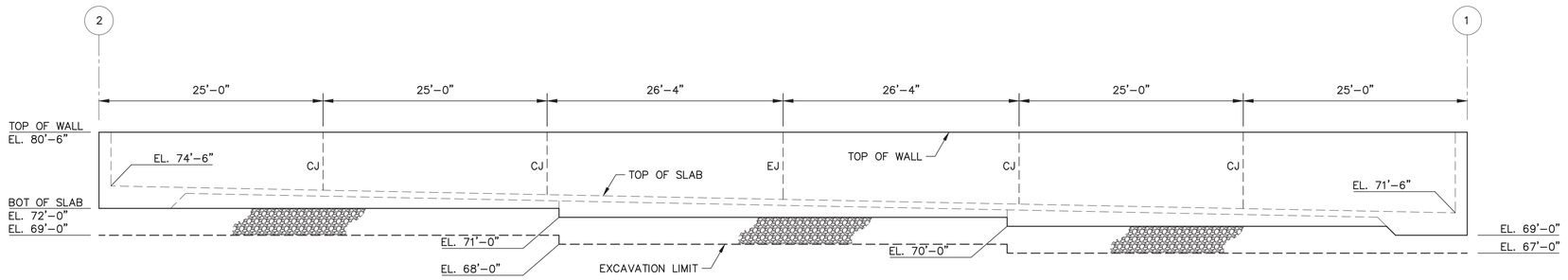
12/16/2020

designed by: LBK
drawn by: LBK
approved by: SEM
date: DEC 2020
project no: 1127
file name: 1127-Foundations.dwg
scale: 8" 0 16" Scale: 1/8" = 1'-0"

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Construction
Foundation Plan View

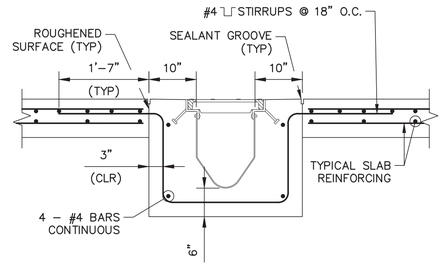
drawing no. 19

sheet: 19 of 21



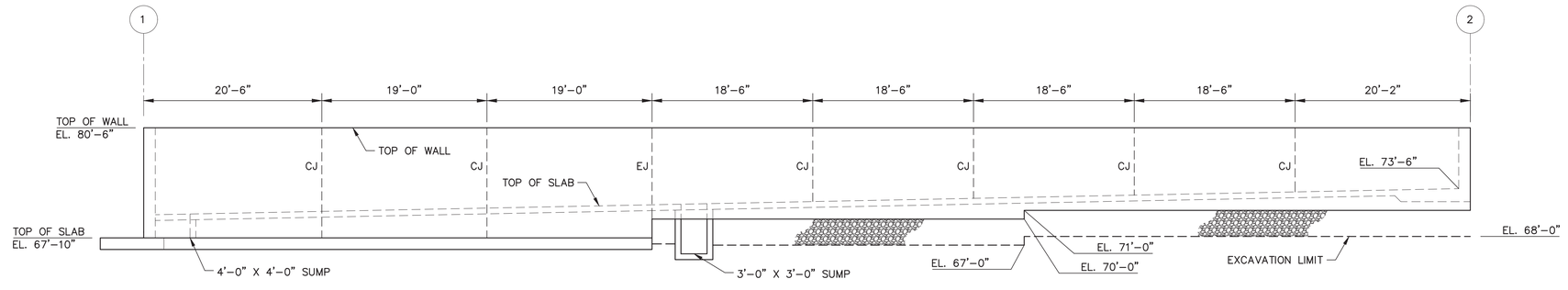
Elevation - North Foundation Wall (Looking South)

Scale: 1/8" = 1'–0"



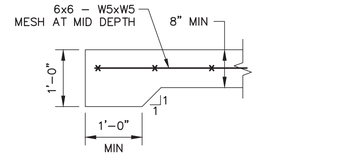
Typical Trench Drain Reinforcement detail

NOT TO SCALE



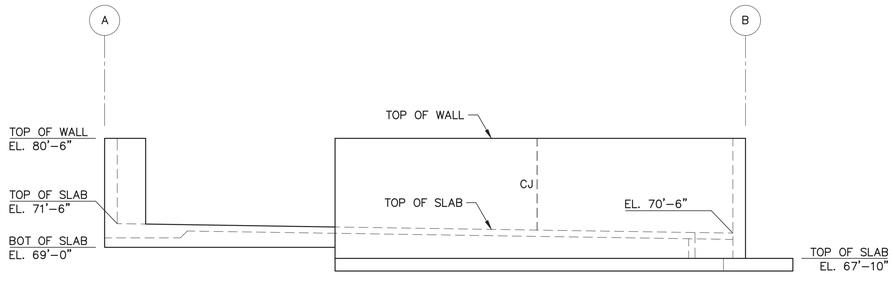
Elevation - South Foundation Wall (Looking North)

Scale: 1/8" = 1'–0"



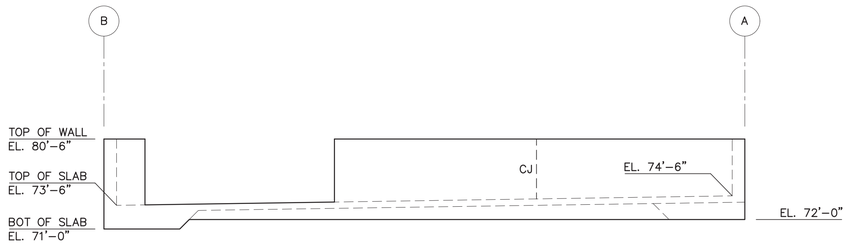
Exterior Slab Thickened Edge Detail

NOT TO SCALE



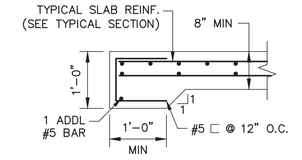
Elevation - West Foundation Wall (Looking East)

Scale: 1/8" = 1'–0"



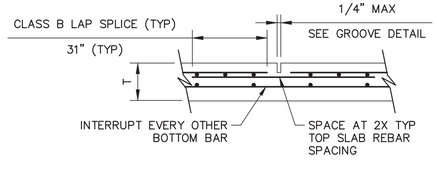
Elevation - East Foundation Wall (Looking West)

Scale: 1/8" = 1'–0"



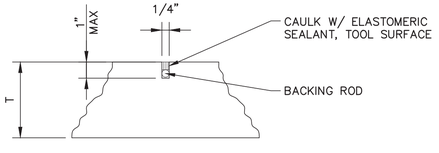
Interior Slab Thickened Edge Detail

NOT TO SCALE



Typical Slab On Grade Control Joint

NOT TO SCALE



Sealant Groove Detail

NOT TO SCALE

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COMMONWEALTH OF MASSACHUSETTS
STEPHEN E MCNALLY
STRUCTURAL
No 34121
REGISTERED PROFESSIONAL ENGINEER

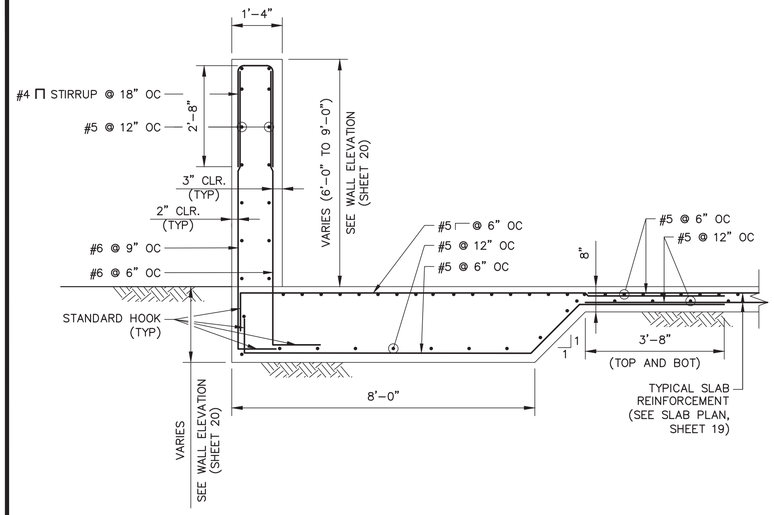
12/16/2020

designed by: LBK
drawn by: LBK
approved by: SEM
scale: Scale: 1/8" = 1'–0" (0, 8', 16')
date: DEC 2020
project no: 1127
file name: 1127-Foundations.dwg

Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Construction
Foundation Elevations

drawing no. 20

sheet: 20 of 21



Section A
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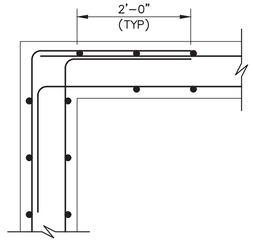
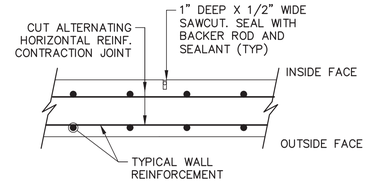
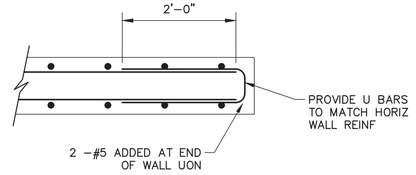


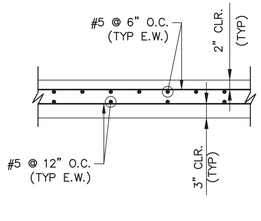
Horizontal Wall Reinforcing at Corner
NOT TO SCALE



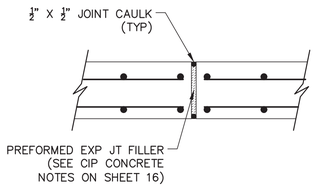
Typical Vertical Wall Construction/Contraction Joint
NOT TO SCALE



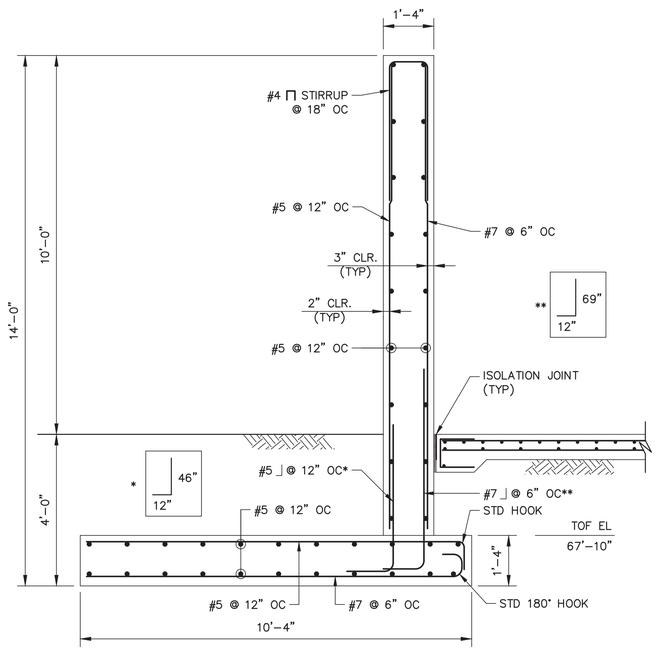
End Reinforcing
NOT TO SCALE



Typical Slab Reinforcement
NOT TO SCALE



Typical Vertical Wall Expansion Joint Detail
NOT TO SCALE



Section F
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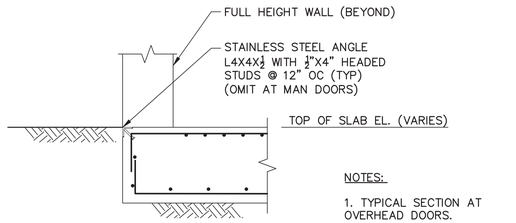

Section B
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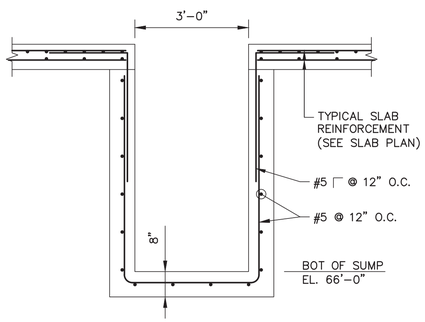

Section D
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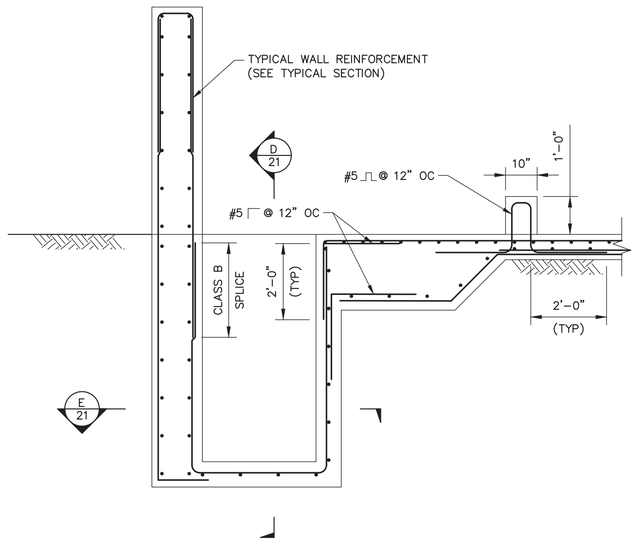

Section C
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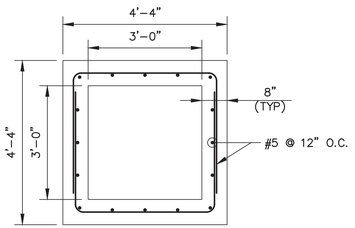

Section E
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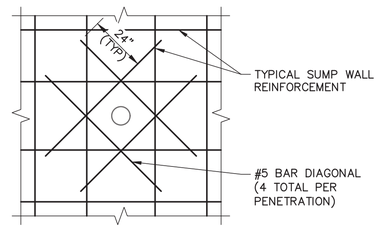

Sump Pipe Penetration Detail
NOT TO SCALE

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Town of Manchester-by-the-Sea, MA
North Shore Regional Compost Facility
Design Drawings
Issued for Construction
Structural Sections and Details

drawing no. 21
sheet: 21 of 21