MERIDEN VILLAGE WATER DISTRICT

WATER TREATMENT & DISPOSAL FACILITY

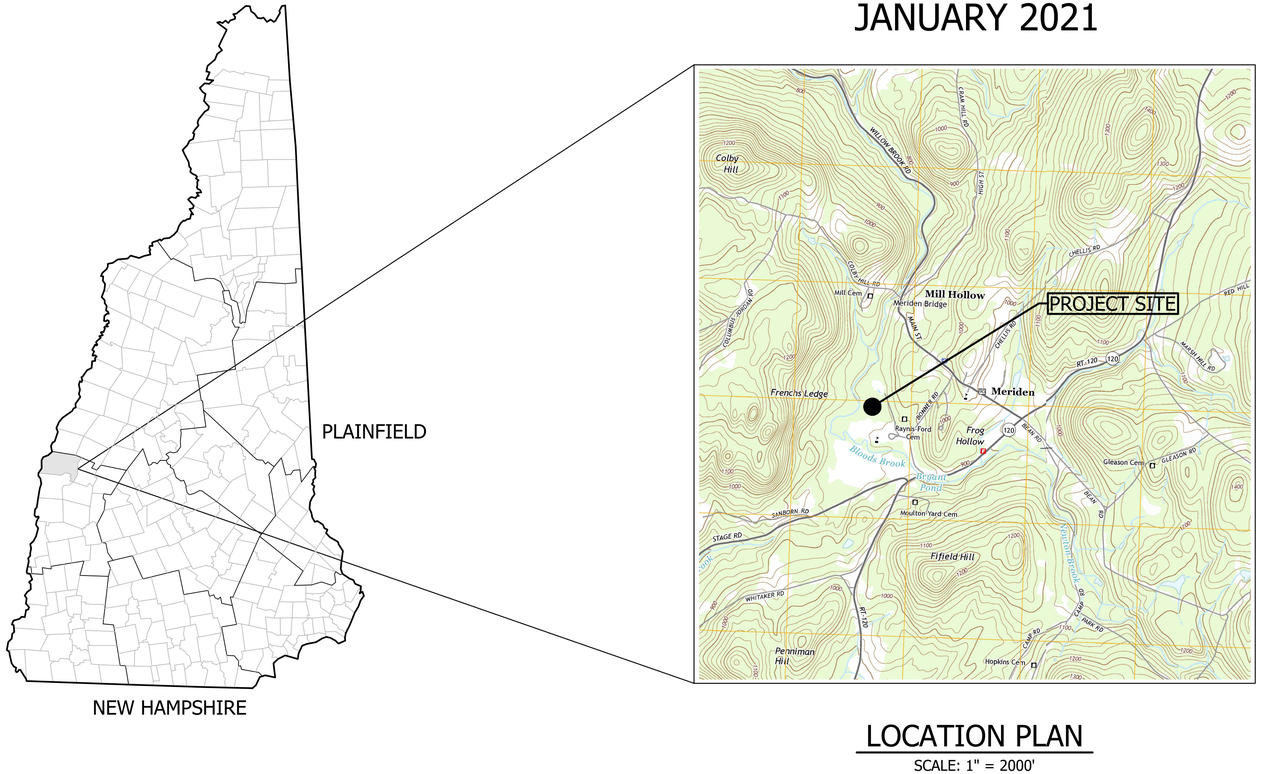
CONTRACT #1 - RAPID INFILTRATION BASIN INSTALLATION

NHDES SITE# 199105022 / PROJECT# 36458 / ACTIVITY# 283279

NBRC NUMBER: NBRC19GNH04

PLAINFIELD (MERIDEN), NEW HAMPSHIRE

JANUARY 2021



LOCATION PLAN

SCALE: 1" = 2000'

OWNER:

MERIDEN VILLAGE WATER DISTRICT
ATTN: WILLIAM TAYLOR
90 BONNER ROAD
PLAINFILED, NH 03781

ENGINEER & SURVEYOR:

horizons Engineering

176 NEWPORT ROAD
PO BOX 1825
NEW LONDON, NH 03257
(603) 877-0116

WETLAND SCIENTIST:

GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DRIVE
BLDG 2, UNIT H
EXETER, NH 03833
(603) 778-0644

SHEET LIST:

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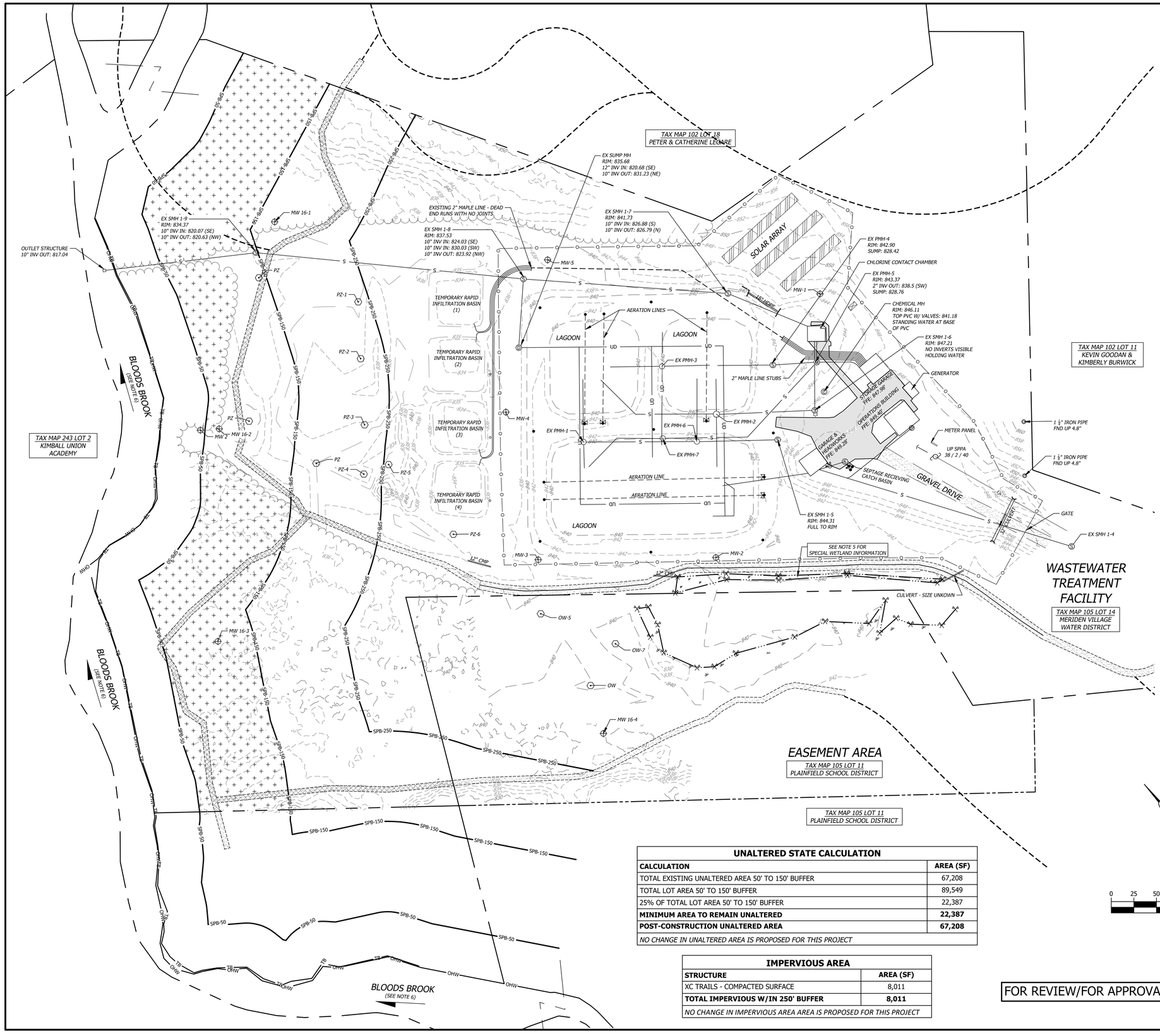

GENERAL NOTES

1. UTILITY LOCATIONS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF EXISTING UTILITIES AND SHALL REPAIR ANY DAMAGE AS QUICKLY AS POSSIBLE AT HIS OWN EXPENSE. ALL UTILITIES ENCOUNTERED SHALL BE LOCATED BY DEPTH AND TIES AND SHOWN BY THE CONTRACTOR ON HIS "AS BUILT" DRAWINGS. HAND EXCAVATION SHALL BE DONE WHEREVER UNDERGROUND UTILITIES ARE SHOWN OR ANTICIPATED. THE CONTRACTOR SHALL CONTACT DIG SAFE AND THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION IN ORDER TO VERIFY EXISTING CONDITIONS AND UTILITY LOCATIONS.
2. BASE MAP INFORMATION INCLUDING TOPOGRAPHY AND FEATURES ON THESE PLANS IS FROM A HORIZONS ENGINEERING, INC. FIELD SURVEY COMPLETED IN FEBRUARY OF 2020 USING TOPCON HIPER V DUAL FREQUENCY SURVEY GRADE GPS RECEIVERS AND A LEICA TS12 ROBOTIC TOTAL STATION. UNDERGROUND UTILITIES WERE APPROXIMATED USING THE CONSTRUCTION PLANS PREPARED BY DEFRESNE-HENRY ENGINEERING CORPORATION, TITLED "PLANS FOR CONSTRUCTION OF WATER POLLUTION CONTROL FACILITIES, WASTEWATER TREATMENT FACILITIES, TOWN OF MERIDEN NEW HAMPSHIRE", AND DATED MARCH 1981.
3. THE VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. THE WETLANDS WERE DELINEATED IN DECEMBER 2019 BY GOVE ENVIRONMENTAL, INC. ACCORDING TO THE DELINEATION STANDARDS IN THE REPORT "REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION (VERSION 2.0-1/12) AND NH WETLANDS BUREAU RULES AND REGULATIONS. WETLAND FLAGS WERE LOCATED AT THE TIME OF THE FIELD SURVEY.
5. THIS WETLAND FALLS UNDER THE JURISDICTION OF NEW HAMPSHIRE STATUTE CHAPTER 482-A.IV.(b) AS A MAN MADE NON-TIDAL DITCH MAY BE MODIFIED AS NECESSARY WITHOUT A WETLAND DREDGE AND FILL PERMIT SUBJECT TO PRESERVATION OF THE DITCHES USEFULNESS WITHOUT IMPACT TO OTHER JURISDICTIONAL WETLANDS.
6. THE TOP OF BANK & ORDINARY HIGH WATER MARK WERE LOCATED IN JUNE 2020 BY HORIZONS ENGINEERING, INC. IN THE AREA ADJACENT TO THE PROJECT PARCEL. THE OPPOSITE SIDE OF THE RIVER IS SHOWN AS THE APPROXIMATE BOUNDARY DERIVED FROM PLAINFIELD TAX MAPS.

LEGEND

- IRON PIPE BOUND/ REBAR BOUND
- CONCRETE BOUND
- WETLAND FLAG
- UTILITY POLE
- GUY WIRE
- BOLLARD
- AERATION LINE VALVE
- SEWER MANHOLE (SMH)
- LIGHT POLE
- MONITORING WELL
- PIEZOMETER
- HEADWALL
- ELECTRIC VAULT
- MANHOLE (SMH)
- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- APPROXIMATE BOUNDARY LINE
- APPROXIMATE EASEMENT LINE
- EXISTING SEWER
- OVERHEAD WIRES
- FENCE (6FT CHAIN LINK)
- CROSS COUNTRY SKI TRAIL NETWORK
- SHORELAND BUFFER
- TOP OF BANK
- ORDINARY HIGH WATER LEVEL
- TRAIL
- DELINEATED WETLANDS
- EXISTING PAVEMENT
- EXISTING GRAVEL
- SHORELAND: UNALTERED AREA
- SHORELAND: IMPERVIOUS AREA

UNALTERED STATE CALCULATION

CALCULATION	AREA (SF)
TOTAL EXISTING UNALTERED AREA 50' TO 150' BUFFER	67,208
TOTAL LOT AREA 50' TO 150' BUFFER	89,549
25% OF TOTAL LOT AREA 50' TO 150' BUFFER	22,387
MINIMUM AREA TO REMAIN UNALTERED	**22,387**
POST-CONSTRUCTION UNALTERED AREA	**67,208**
NO CHANGE IN UNALTERED AREA IS PROPOSED FOR THIS PROJECT	

IMPERVIOUS AREA

STRUCTURE	AREA (SF)
XC TRAILS - COMPACTED SURFACE	8,011
TOTAL IMPERVIOUS W/IN 250' BUFFER	**8,011**
NO CHANGE IN IMPERVIOUS AREA AREA IS PROPOSED FOR THIS PROJECT	

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WATER TREATMENT & DISPOSAL FACILITY

CONTRACT #1 - RAPID INFILTRATION BASIN INSTALLATION

EXISTING CONDITIONS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

MICHAEL P. DUFFY No. 8530 LICENSED PROFESSIONAL ENGINEER NEW HAMPSHIRE

DATE: FEB 2020	PROJECT #: 19878
SURV'D BY: JDN	DRAWN BY: JDN/AST
CHECK'D BY: MPD	ARCHIVE #: -

C1.1

GENERAL NOTES

1. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE PLANS AND TECHNICAL SPECIFICATIONS.
2. NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.
3. ALL WORK SHALL BE PERFORMED WITHIN THE PROPERTY OF, AND EASEMENTS SECURED BY, THE OWNER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DATA COLLECTION AND PREPARATION OF RECORD DRAWINGS.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTROLLING EROSION IN ALL AREAS DISTURBED BY HIS ACTIONS. COSTS FOR REQUIRED EROSION CONTROL, REGARDLESS OF WHETHER OR NOT SUCH MEASURES ARE SHOWN ON THE ENGINEERING DRAWINGS, SHALL BE BORNE BY HIM.
6. THIS WETLAND FALLS UNDER THE JURISDICTION OF NEW HAMPSHIRE STATUTE CHAPTER 482-A.IV.(b) AS A MAN MADE NON-TIDAL DITCH MAY BE MODIFIED AS NECESSARY WITHOUT A WETLAND DREDGE AND FILL PERMIT SUBJECT TO PRESERVATION OF THE DITCHES USEFULNESS WITHOUT IMPACT TO OTHER JURISDICTIONAL WETLANDS.

PROPOSED LEGEND

- 500 — MAJOR CONTOUR LINE
- 502 — MINOR CONTOUR LINE
- UGE — UNDERGROUND ELECTRIC CONDUIT
- 2" HDPE PIPE
- 6' CHAIN LINK FENCE
- SF — SILTFENCE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED CONCRETE

TAX MAP 102 LOT 18
PETER & CATHERINE LEGARE

TAX MAP 102 LOT 11
KEVIN GOODAN & KIMBERLY BURWICK

TAX MAP 105 LOT 14
MERIDEN VILLAGE WATER DISTRICT

TAX MAP 105 LOT 11
PLAINFIELD SCHOOL DISTRICT

EASEMENT AREA

WASTEWATER TREATMENT FACILITY

BLOODS BROOK

SOLAR ARRAY

LIMIT OF WORK FOR CONTRACT #1

PUMP STATION WORK NOT INCLUDED IN CONTRACT #1

EX SMH 1-9
RIM: 834.37
10" INV IN: 820.07 (SE)
10" INV OUT: 820.63 (NW)

EX SMH 1-8
RIM: 837.53
10" INV IN: 824.03 (SE)
10" INV IN: 830.03 (SW)
10" INV OUT: 823.92 (NW)

EX SMH 1-7
RIM: 841.73
10" INV IN: 826.88 (S)
10" INV OUT: 826.79 (N)

EXISTING 2" MAPLE LINE - DEAD END
RUNS WITH NO JOINTS
KIPC: 0.13.08
12" INV IN: 820.68 (SE)
10" INV OUT: 831.23 (NE)

REMOVE (4) EXISTING PIPE RUNS AND INSTALL 2" SDR 26 PVC OR DR17 HDPE PIPE, ONE FOR EACH BASIN, IN COMMON TRENCH, FROM NEW BASINS TO MANIFOLD BUILDING

PROPOSED 6' CHAIN LINK FENCE WITH GATE AT OWNERS PREFERRED LOCATION

RIB 1
BASE ELEV: 837.5

RIB 2
BASE ELEV: 836.0

RIB 3
BASE ELEV: 834.0

4' X 8' X 8" THICK SPLASH PAD (TYP.)

110.0 (TYP.)

120.0 (TYP.)

60.0 (TYP.)

70.0 (TYP.)

MAINTENANCE RAMP (4:1)

LOAM, SEED AND MULCH DISTURBED AREAS (TYP.)

AERATION LINES

REMOVE (3) 2" MAPLE PIPE STUBS

REMOVE EXISTING CHAIN LINK FENCE

INSTALL GATE - LOCATION AT OWNERS PREFERENCE

12' CONSTRUCTION ACCESS DRIVE (TYP.)

SEE NOTE 5 FOR SPECIAL WETLAND INFORMATION

INSTALL SEDIMENT FENCE WITH DOUBLE PROTECTION; REQUIRED ADJACENT TO WETLANDS

UTILIZE EXISTING TRAIL FOR CONSTRUCTION ACCESS

INSTALL CONSTRUCTION ENTRANCE AT EXISTING DRIVEWAY (SEE SHEET C 3.1)

EX PMH-4
RIM: 842.90
SUMP: 828.42

CHLORINE CONTACT CHAMBER

EX PMH-5
RIM: 843.37
2" INV OUT: 838.5 (SW)
SUMP: 828.76

CHEMICAL MH
RIM: 846.11
TOP PVC W/ VALVES: 841.18
STANDING WATER AT BASE OF PVC

UPGRADE EX. MH WITH (2) MYERS ME40C-11 PUMPS ; OR APPROVED EQUAL

PROPOSED UGE FOR PUMP STATION

MANIFOLD BUILDING

EX SMH 1-6
RIM: 847.21
NO INVERTS VISIBLE
HOLDING WATER

GENERATOR

STORAGE GARAGE
FFE: 847.98

OPERATIONS BUILDING
FFE: 849.40

GARAGE & MEANWORKS
FFE: 849.38

METER PANEL

UP SPPA
38 / 2 / 40

SEPTAGE RECIEVING CATCH BASIN

GRAVEL DRIVE

1 ¼" IRON PIPE FND UP 4.8"

1 ¼" IRON PIPE FND UP 4.8"

GATE

EX SMH 1-4

EX SMH 1-5
RIM: 844.31
FULL TO RIM

MW-1 MW-2 MW-3 MW-4 MW-5
MW 16-1 MW 16-2 MW 16-3 MW 16-4 MW 2
PZ PZ-1 PZ-2 PZ-3 PZ-4 PZ-5 PZ-6
TB-1 TB-2 TB-3 TB-4 TB-5 TB-6 TB-7
OW OW-5 OW-7

PROJECT SCOPE NOTE

1. THE PORTION OF THE PROJECT TO BE COMPLETED UNDER THIS CONTRACT INCLUDES THE CONSTRUCTION OF THE RAPID INFILTRATION BASIN'S AND ALL ASSOCIATED WASTEWATER CONVEYANCE PIPING. THE PUMP STATION IMPROVEMENTS WILL BE COMPLETED SEPARATELY BY THE MERIDEN VILLAGE WATER DISTRICT.

0 20 40 80 160
SCALE IN FEET

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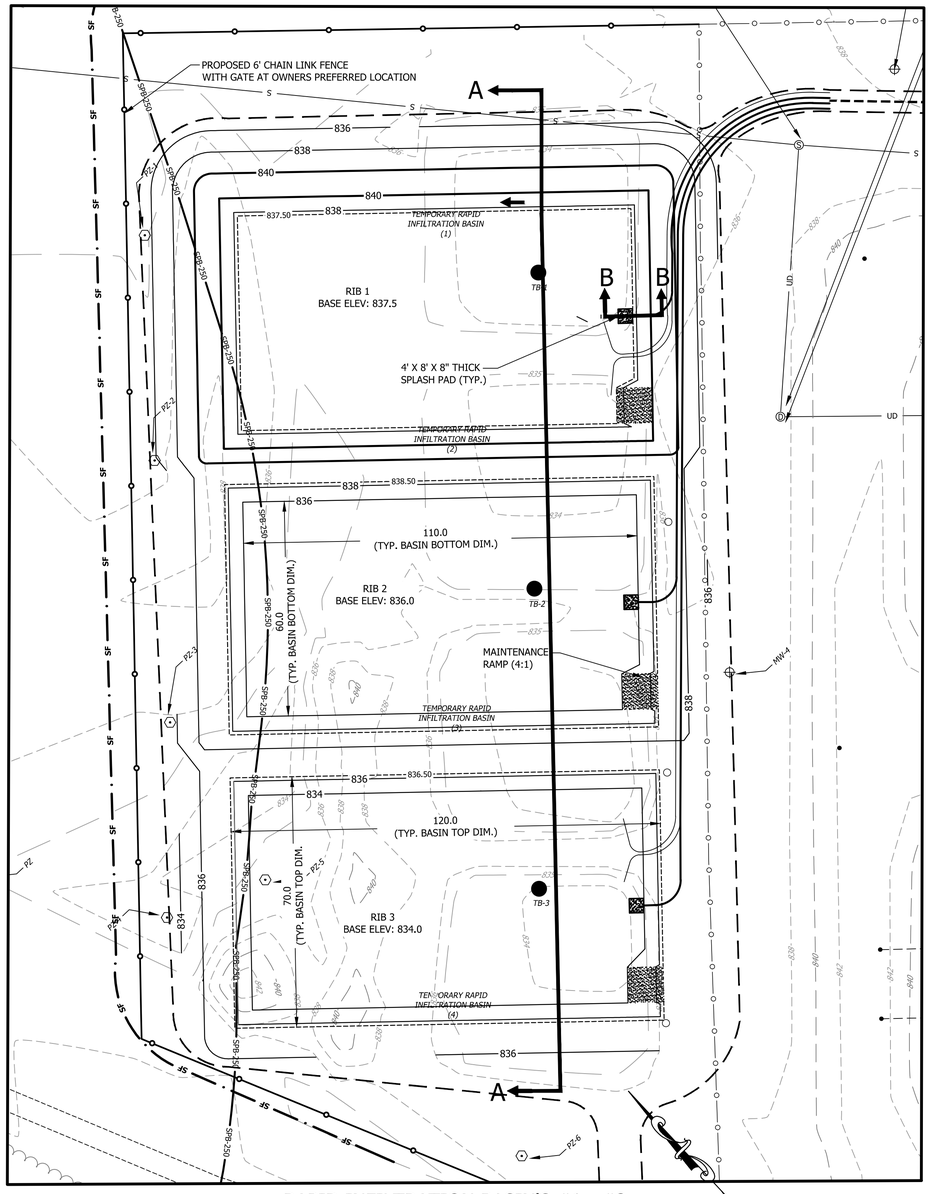
OVERVIEW SITE PLAN

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

MICHAEL F. DUFFY No. 8030 LICENSED PROFESSIONAL ENGINEER - NEW HAMPSHIRE

DATE: JAN 2021	PROJECT #: 19878
ENGIN'D BY: MFD	DRAWN BY: AST
CHECK'D BY: MFD	ARCHIVE #: -

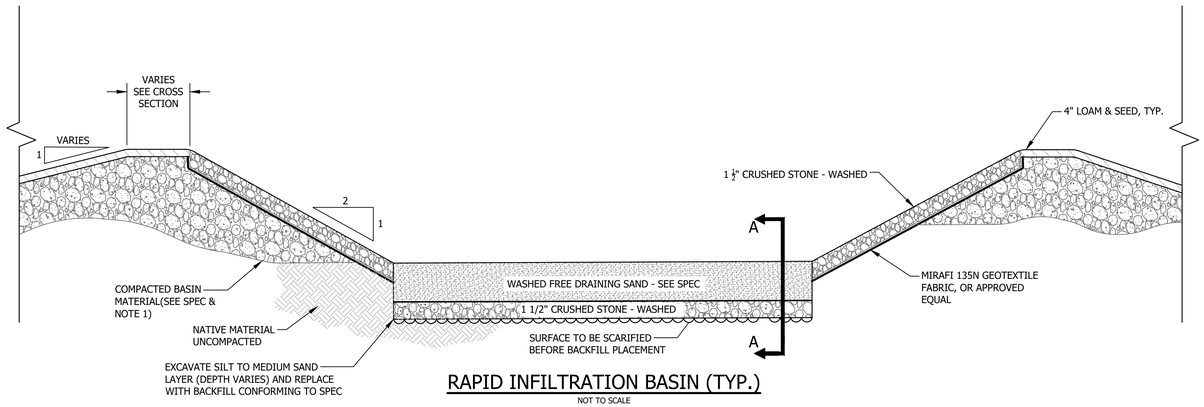
C2.1



RAPID INFILTRATION BASIN'S #1 - #3

0 10 20 40 80

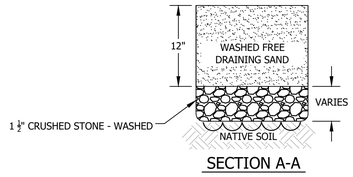
SCALE IN FEET



RAPID INFILTRATION BASIN (TYP.)

NOT TO SCALE

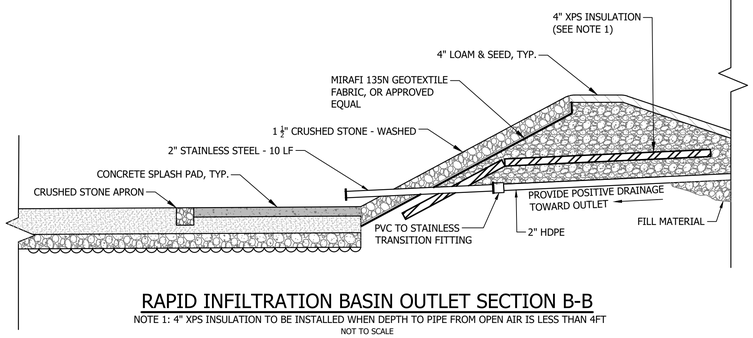
NOTE 1: BASIN WALL FILL MATERIAL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO A DENSITY OF 90% COMPACTION BASED ON ASTM D1557, METHOD C (MODIFIED PROCTOR)



SECTION A-A

WASHED FREE DRAINING SAND SPEC	
SIEVE SIZE	**PERCENT PASSING BY WEIGHT**
3/8 IN (19.0 mm)	100
#4	95 - 100
#16	50 - 85
#50	10 - 30
#100	2 - 10
#200	0 - 2

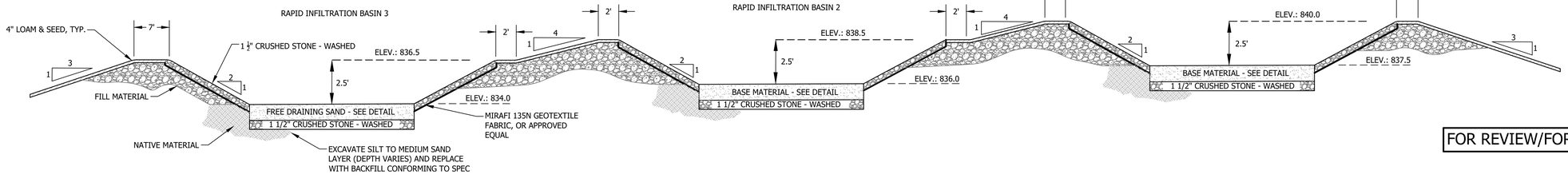
BASIN FILL MATERIAL SPEC	
SIEVE SIZE	**PERCENT PASSING BY WEIGHT**
6 IN	100
#10	0 - 10



RAPID INFILTRATION BASIN OUTLET SECTION B-B

NOTE 1: 4" XPS INSULATION TO BE INSTALLED WHEN DEPTH TO PIPE FROM OPEN AIR IS LESS THAN 4FT

NOT TO SCALE



RAPID INFILTRATION BASIN'S 1-3 CROSS-SECTION DETAIL A-A

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RAPID INFILTRATION BASIN 1-3 GRADING & DETAILS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

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C2.2

SEEDING RECOMMENDATIONS

1. GRADING AND SHAPING

A. SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.

2. SEEDBED PREPARATION

A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.

B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE AMENDED WITH ORGANIC MATTER AND TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME THOROUGHLY INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

3. ESTABLISHING VEGETATION

A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:

-AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ. FT.
-NITROGEN (N), 50 LBS., PER ACRE OR 1.1 LBS. PER 1,000 SQ. FT.
-PHOSPHATE (P_2O_5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.
-POTASH (K_2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.

(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10).

B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING, AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.

C. SEEDING GUIDE:

USE	SEEDING MIXTURE (SEE 3D)	SOIL TYPE: DROUGHTY	WELL DRAINED	MOD. WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR

D. SEEDING RATES:

	MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.
A	TALL FESCUE	20	0.45
	CREEPING RED FESCUE	20	0.45
	REDTOP	2	0.05
	TOTAL:	42	0.95
B	TALL FESCUE	15	0.35
	CREEPING RED FESCUE	10	0.25
	CROWN VETCH **OR**	15 **OR**	0.35 **OR**
	FLATPEA	30	0.75
	TOTAL:	40 **OR** 55	0.95 **OR** 1.35
C	TALL FESCUE	20	0.45
	FLATPEA	30	0.75
	TOTAL:	50	1.20

E. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO SEPTEMBER 15. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.

F. TEMPORARY SEEDING RATES:

SPECIES	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.	REMARKS
WINTER RYE	112	2.5	BEST FOR FALL SEEDING. SEED FROM AUGUST TO SEPTEMBER 5TH FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.
OATS	80	2.0	BEST FOR SPRING SEEDING. SEED NO LATER THAN MAY 15TH FOR SUMMER PROTECTION. SEED TO A DEPTH OF 1 INCH.
ANNUAL RYEGRASS	40	1.0	GROWS QUICKLY, BUT IS OF SHORT DURATION. USE WHERE APPEARANCES ARE NOT IMPORTANT. SEED EARLY SPRING AND/OR BETWEEN AUGUST 15TH AND SEPTEMBER 15TH. COVER SEED WITH NO MORE THAN 0.25 INCH OF SOIL.
PERENNIAL RYEGRASS	30	0.7	GOOD COVER WHICH IS LONGER LASTING THAN ANNUAL RYEGRASS. SEED BETWEEN APRIL 1ST AND JUNE 1ST AND/OR BETWEEN AUGUST 15TH AND SEPTEMBER 15TH. MULCHING WILL ALLOW SEEDING THROUGHOUT THE GROWING SEASON. SEED TO A DEPTH OF APPROXIMATELY 0.5 INCH.

4. MULCH

A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.

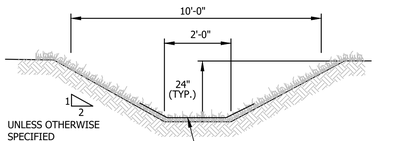
B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING.

5. MAINTENANCE TO ESTABLISH A STAND

A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.

B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ON SITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.

C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.



GRASS LINED DITCH DETAIL

NOT TO SCALE

EROSION CONTROL GENERAL NOTES

A. KEEP SITE MODIFICATION TO A MINIMUM

1. CONSIDER FITTING THE BUILDINGS AND STREETS TO THE NATURAL TOPOGRAPHY. THIS REDUCES THE NEED FOR CUTS AND FILLS. AVOID EXTENSIVE GRADING THAT WOULD ALTER DRAINAGE PATTERNS OR CREATE VERY STEEP SLOPES.
2. EXPOSE AREAS OF BARE SOIL TO EROSIVE ELEMENTS FOR THE SHORTEST TIME POSSIBLE.
3. SAVE AND PROTECT DESIRABLE EXISTING VEGETATION WHERE POSSIBLE. ERECT BARRIERS TO PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT.
4. LIMIT THE GRADES OF SLOPES SO VEGETATION CAN BE EASILY ESTABLISHED AND MAINTAINED.
5. AVOID SUBSTANTIAL INCREASE IN RUNOFF LEAVING THE SITE.

B. MINIMIZE POLLUTION OF WATER DURING CONSTRUCTION ACTIVITIES

1. STOCKPILE TOPSOIL REMOVED FROM CONSTRUCTION AREA AND SPREAD OVER ANY DISTURBED AREAS PRIOR TO REVEGETATION. TOPSOIL STOCKPILES MUST BE PROTECTED FROM EROSION.
2. PROTECT BARE SOIL AREAS EXPOSED BY GRADING ACTIVITIES WITH TEMPORARY VEGETATION OR MULCHES.
3. USE SEDIMENT BASINS TO TRAP DEBRIS AND SEDIMENT WHICH WILL PREVENT THESE MATERIALS FROM MOVING OFF SITE.
4. USE DIVERSIONS TO DIRECT WATER AROUND THE CONSTRUCTION AREA AND AWAY FROM EROSION PRONE AREAS TO POINTS OF SAFE DISPOSAL.
5. USE TEMPORARY CULVERTS OR BRIDGES WHEN CROSSING STREAMS WITH EQUIPMENT.
6. PLACE CONSTRUCTION FACILITIES, MATERIALS, AND EQUIPMENT STORAGE AND MAINTENANCE AREAS AWAY FROM DRAINAGE WAYS.

C. PROTECT AREA AFTER CONSTRUCTION.

1. ESTABLISH GRASS OR OTHER SUITABLE VEGETATION ON ALL DISTURBED AREAS. SELECT SPECIES ADAPTED TO THE SITE CONDITIONS AND THE FUTURE USE OF THE AREA. FINAL GRADES SHALL BE SEEDED WITHIN 72 HOURS. STABILIZATION SHALL BE DEFINED AS 85% VEGETATIVE COVER.
2. MAINTAIN VEGETATED AREAS USING PROPER VEGETATIVE 'BEST MANAGEMENT PRACTICES' DURING THE CONSTRUCTION PERIOD.
3. MAINTAIN NEEDED STRUCTURAL 'BEST MANAGEMENT PRACTICES' AND REMOVE SEDIMENT FROM DETENTION PONDS AND SEDIMENT BASINS AS NEEDED.
4. DETERMINE RESPONSIBILITY FOR LONG TERM MAINTENANCE OF PERMANENT 'BEST MANAGEMENT PRACTICES'.
5. IF CONSTRUCTION IS ANTICIPATED DURING WINTER MONTHS, REFER TO 'COLD WEATHER SITE STABILIZATION REQUIREMENTS'.

D. INVASIVE SPECIES AND FUGITIVE DUST

1. THE PROJECT SHALL NOT CONTRIBUTE TO THE SPREAD OF INVASIVE SPECIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EVALUATE WORK AREAS FOR THE PRESENCE OF INVASIVE SPECIES, AND IF FOUND SHALL TAKE NECESSARY MEASURES TO PREVENT THEIR SPREAD IN ACCORDANCE WITH RSA 430:51-57 AND AGR 3800. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT THE INTRODUCTION OF INVASIVE SPECIES BY INSPECTING AND CLEANING ALL EQUIPMENT ARRIVING ON SITE.
2. FUGITIVE DUST SHALL BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000.

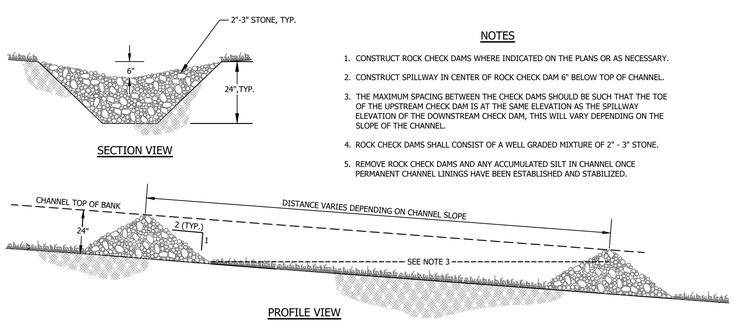
COLD WEATHER SITE STABILIZATION REQUIREMENTS

TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE FOLLOWING ADDITIONAL STABILIZATION TECHNIQUES SHALL BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 1:

1. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE LIMITED TO 1 ACRE AND SHALL BE PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT. THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY NHDES.
2. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE, SECURED WITH ANCHORED NETTING OR TACKIFIER, OR 2 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H).
3. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH PROPERLY INSTALLED AND ANCHORED EROSION CONTROL MATTING OR WITH A MINIMUM 4 INCH THICKNESS OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H).
4. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX, MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H), SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.
5. INSTALLATION OF EROSION CONTROL MATTING SHALL NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
6. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH NOTES 2 OR 3 ABOVE, SHALL BE COMPLETED WITHIN 1 DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
7. 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, AS DETERMINED BY THE OWNER'S ENGINEERING CONSULTANT.
8. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM NO. 304.1 OR 304.2.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



NOTES

1. CONSTRUCT ROCK CHECK DAMS WHERE INDICATED ON THE PLANS OR AS NECESSARY.
2. CONSTRUCT SPILLWAY IN CENTER OF ROCK CHECK DAM 6" BELOW TOP OF CHANNEL.
3. THE MAXIMUM SPACING BETWEEN THE CHECK DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE SPILLWAY ELEVATION OF THE DOWNSTREAM CHECK DAM, THIS WILL VARY DEPENDING ON THE SLOPE OF THE CHANNEL.
4. ROCK CHECK DAMS SHALL CONSIST OF A WELL GRADED MIXTURE OF 2" - 3" STONE.
5. REMOVE ROCK CHECK DAMS AND ANY ACCUMULATED SILT IN CHANNEL ONCE PERMANENT CHANNEL LININGS HAVE BEEN ESTABLISHED AND STABILIZED.

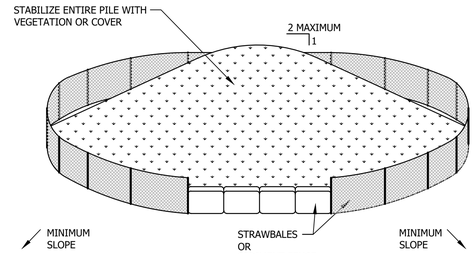
ROCK CHECK DAM DETAIL

NO SCALE

CONSTRUCTION SEQUENCE

1. PREPARE AN EROSION CONTROL PLAN OR A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. INSTALL CONSTRUCTION ENTRANCE, SEE DETAIL.
3. CUT AND CLEAR TREES WITHIN THE CLEARING LIMITS.
4. INSTALL SEDIMENT FENCES, ROCK CHECK DAMS, AND OTHER APPROPRIATE EROSION CONTROL MEASURES AT LOCATIONS SHOWN ON THE PLANS AND AS NEEDED.
5. GRUB SITE WITHIN GRADING LIMITS.
6. STRIP AND STOCKPILE TOPSOIL AND INSTALL EROSION CONTROL MEASURES.
7. INSTALL/ADJUST SEDIMENT FENCE, CHECK DAMS, AND HAYBALES, AS REQUIRED.
8. CONSTRUCT PERMANENT STORMWATER CONTROLS AS SOON AS PRACTICAL. DO NOT DIRECT STORMWATER TOWARD TREATMENT BASINS, PONDS, SWALES, DITCHES AND LEVEL SPREADERS UNTIL THEY HAVE BEEN STABILIZED.
9. PROCEED WITH WORK, LIMITING THE DURATION OF DISTURBANCE. IN AREAS WHERE THE INFILTRATION BASIN BOTTOMS ARE LOCATED, ENSURE STRIPPING OF MATERIAL IS DONE IN A MANNER THAT DOES NOT COMPACT THE EXISTING SOIL. SCARIFY THE AREA TO A DEPTH OF 12 INCHES PRIOR TO INSTALLING BASIN BOTTOM MATERIAL. THE MAXIMUM OF UNCOVERED DISTURBED EARTH AT ANY ONE TIME IS FIVE ACRES. THE MAXIMUM LENGTH OF TIME THAT DISTURBED EARTH MAY BE LEFT UNSTABILIZED IS 45 DAYS.
10. BEGIN SEEDING AND MULCHING IMMEDIATELY AFTER GRADING. ALL DISTURBED AREAS SHALL BE STABILIZED WITH APPROVED METHODS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

    AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
    D) EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. INSPECT ALL EROSION CONTROL MEASURES ON A DAILY BASIS AND AFTER EVERY 0.5 INCHES OF PRECIPITATION. MAINTAIN SEDIMENT FENCE, SEDIMENT TRAPS, HAY BALES, ETC., AS NECESSARY.
12. TIE IN CONSTRUCTION ACCESS ROAD TO THE EXISTING CROSS-COUNTRY SKI TRAIL NETWORK. GRADE TRAIL TO A SLOPE NO GREATER THAN 2%.
13. PLACE TOPSOIL, SEED AND MULCH. INSTALL FENCE AROUND THE INFILTRATION BASIN'S FOLLOWING THE COMPLETION OF GRADING. INSTALL PRIVACY SHRUBS AROUND RIB'S 4 & 5.
14. COMPLETE ALL REMAINING PERMANENT EROSION CONTROL STRUCTURES.
15. MONITOR THE SITE AND MAINTAIN STRUCTURES AS NEEDED UNTIL FULL VEGETATION IS ESTABLISHED.



SOIL STOCKPILING IS TO BE USED WHERE TOPSOIL IS NECESSARY FOR REGRADING AND VEGETATING DISTURBED AREAS.

TEMPORARY STOCKPILE STABILIZATION MEASURES INCLUDE VEGETATIVE COVERS, MULCH, NON-VEGETATIVE COVERS, AND PERIPHERAL SEDIMENT TRAPPING BARRIERS. THE STABILIZATION MEASURE(S) SELECTED SHOULD BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, AND REQUIRED PERIOD OF USE.

INSTALLATION NOTES:

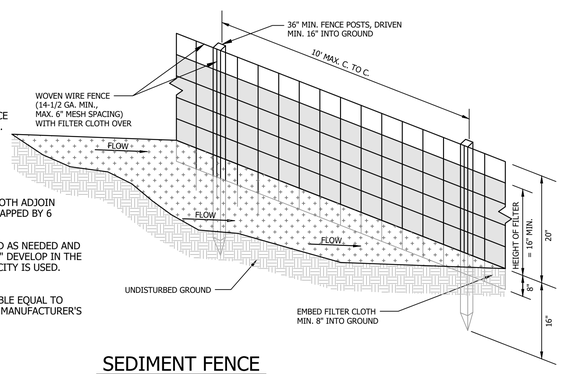
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES AND THEN STABILIZED WITH VEGETATION OR COVERED.

SOIL STOCKPILING DETAIL

NOT TO SCALE

CONSTRUCTION NOTES FOR SEDIMENT FENCE

1. WOVEN WIRE FENCE, IF REQUIRED, TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP, MID SECTION, AND BOTTOM.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SEDIMENT FENCE, OR 50% OF CAPACITY IS USED.
5. 12" DIAMETER FILTREXX SILTSOXX SHALL BE CONSIDERED AN ACCEPTABLE EQUAL TO SEDIMENT FENCE IF INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.



SEDIMENT FENCE

NO SCALE

FOR REVIEW/FOR APPROVAL

horizons Engineering
LITTLETON NH • NEWPORT VT
NEW LONDON NH • POMFRET VT • KENNEBUNK ME

MERIDEN VILLAGE WATER DISTRICT
WATER TREATMENT & DISPOSAL FACILITY
CONTRACT #1 - RAPID INFILTRATION BASIN INSTALLATION
EROSION CONTROL NOTES AND DETAILS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

DATE: JAN 2021	PROJECT #: 19878
ENGIN'D BY: MPD	DRAWN BY: AST
CHECK'D BY: MPD	ARCHIVE #: -

C3.1

MICHAEL P. DUFFY No. 8530 LICENSED PROFESSIONAL ENGINEER

DATE OF PRINT
JANUARY 19 2021
HORIZONS ENGINEERING

last revised: 2018-APR-18

SEWER NOTES

1. GENERAL

CONSTRUCTION OF ALL COMPONENTS OF THE SANITARY SEWER SYSTEM SHALL CONFORM TO THE MOST CURRENT VERSION OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES ENV-WQ 700 AND PROJECT SPECIFIC TECHNICAL SPECIFICATIONS.

2. TYPES OF SEWERS

A. THERE SHALL BE NO CONNECTION BETWEEN SANITARY SEWERS AND STORM SEWERS.
B. RUNOFF FROM ROOFS, STREETS, AND OTHER AREAS AND GROUNDWATER FROM FOUNDATION DRAINS, SUMP PUMPS, OR OTHER SUBSURFACE DRAINS SHALL BE EXCLUDED FROM SANITARY SEWERS.

3. SEWER SIZE AND COVER

A. MINIMUM PIPE SIZE FOR GRAVITY SEWER MAINS SHALL BE 8 INCHES.
B. MINIMUM PIPE SIZE FOR GRAVITY SEWER SERVICES SHALL BE 4 INCHES.
C. MINIMUM PIPE SIZE FOR FORCE MAIN SEWER SERVICES SHALL BE 2 INCHES.
D. SANITARY SEWERS SHALL HAVE 6 FEET MINIMUM COVER IN ALL ROADWAY LOCATIONS AND 4 FEET MINIMUM COVER IN ALL CROSS-COUNTRY LOCATIONS.

4. PIPE AND FITTING MATERIALS:

A. DUCTILE IRON PIPE

DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION:
(1) AWWA C151 FOR DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL OR SAND LINED MOLDS, FOR WATER OR OTHER LIQUIDS;
(2) AWWA C150 FOR THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A 536 IRON CASTINGS; AND
(3) JOINTS SHALL BE MECHANICAL TYPE, PUSH-ON TYPE, OR BALL-AND-SOCKET TYPE;

B. PVC (POLY VINYL CHLORIDE) PIPE

PVC PIPE AND FITTINGS SHALL BE APPROVED FOR SEWAGE SERVICE AND CONFORM TO THE FOLLOWING:
(1) PVC PIPE USED FOR GRAVITY SEWERS SHALL BE TYPE SDR 35 CONFORMING TO ASTM D3034;
(2) PVC PIPE USED FOR FORCE MAINS SHALL BE TYPE SDR 26 CONFORMING TO ASTM D2241 OR ASTM D1785;
(3) JOINTS SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE HAVING OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212.

5. BEDDING

PIPE BEDDING SHALL BE SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM ORGANIC MATTER, CLAY, AND/OR LOAM MEETING ASTM C33 STONE SIZE NO. 67. BEDDING SHALL EXTEND FROM THE SPRING LINE OF THE PIPE TO A MINIMUM DEPTH OF 6" BELOW THE BOTTOM OF THE PIPE OUTSIDE SURFACE.

100% PASSING	1 INCH SCREEN
90-100% PASSING	¾ INCH SCREEN
20-55% PASSING	⅜ INCH SCREEN
0-10% PASSING	#4 SIEVE
0-5% PASSING	#8 SIEVE

6. MANHOLES

A. PRECAST CONCRETE BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO ASTM C478.
B. MANHOLES SHALL BE DESIGNED FOR H-20 LOADING.
C. HORIZONTAL JOINTS BETWEEN BARREL SECTIONS SHALL BE OF AN OVERLAPPING TYPE WHICH SHALL DEPEND UPON A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT FOR WATER TIGHTNESS.
D. PIPE TO MANHOLE JOINTS SHALL BE AS FOLLOWS:
(1) ELASTOMERIC, RUBBER SLEEVE WITH WATERTIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES;
(2) CAST INTO THE WALL OR SECURED WITH STAINLESS STEEL CLAMPS;
(3) ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING; AND
(4) NON-SHRINK GROUTED JOINTS WHERE WATERTIGHT BONDING TO THE MANHOLE AND PIPE CAN BE OBTAINED.

E. MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY. INVERTS AND SHELVES SHALL BE PLACED AFTER TESTING.

7. PROTECTION OF WATER SUPPLIES

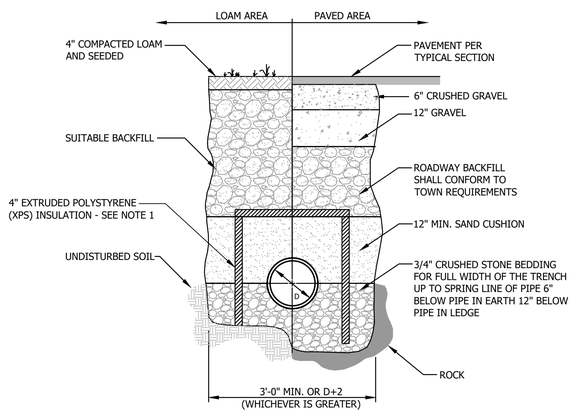
A. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE WATER SUPPLY SYSTEM AND A SEWER OR SEWER APPURTENANCE WHICH WOULD PERMIT THE PASSAGE OF SEWAGE OR POLLUTED WATER INTO THE POTABLE SUPPLY. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.

B. NO SEWER SHALL BE LOCATED WITHIN THE WELL PROTECTIVE RADII ESTABLISHED IN ENV-WS 300 FOR ANY PUBLIC WATER SUPPLY WELLS OR WITHIN 100 FEET OF ANY PRIVATE WATER SUPPLY WELL.

C. SEWERS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.

D. A DEVIATION FROM THE SEPARATION REQUIREMENTS OF (B) OR (C) ABOVE SHALL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN ENV-WQ 704.06.

E. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
(1) VERTICAL SEPARATION OF THE SEWER AND WATER MAIN SHALL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND
(2) SEWER PIPE JOINTS SHALL BE LOCATED AT LEASE 6 FEET HORIZONTALLY FROM THE WATER MAIN.



INSULATED TRENCH DETAIL

NOTE 1: 4" XPS INSULATION TO BE INSTALLED WHEN DEPTH TO PIPE FROM OPEN AIR IS LESS THAN 4FT

NOT TO SCALE

PUMP STATION ALARM NOTES

1. ALARM SYSTEMS MEETING THE REQUIREMENTS OF (B) THROUGH (J), BELOW, SHALL BE PROVIDED FOR ALL SEWAGE PUMPING STATIONS.

2. THE ALARM SIGNAL SHALL BE ACTIVATED IN ANY ONE OF THE FOLLOWING CIRCUMSTANCES AND IN ANY COMBINATION OF THE FOLLOWING CIRCUMSTANCES:
(1) HIGH WATER IN THE WET WELL
(2) LOW WATER IN THE WET WELL
(3) LOSS OF ONE OR MORE PHASES OF POWER SUPPLY OR SEVERE VOLTAGE DROP;
(4) LOSS OF ALARM TRANSMISSION CAPABILITY;
(5) STANDBY GENERATOR APPLICATION, IF APPLICABLE;
(6) PUMP MALFUNCTION, INCLUDING SHAFT SEAL FAILURE;
(7) LEVEL SENSING MALFUNCTION OR FAILURE;
(8) INTRUSION; OR
(9) TEMPERATURE OUTSIDE NORMAL OPERATING RANGES

3. THE HIGH WATER AND LOW WATER ALARM TRIGGERS SHALL BE SEPARATE DEVICES, INDEPENDENT OF THE PUMP WET WELL LEVEL CONTROL SYSTEM AND SET AT ELEVATIONS ABOVE AND BELOW THE LAG PUMP ON AND OFF ELEVATIONS,RESPECTIVELY.

4. OPERATION OF THE ALARM SYSTEM SHALL BE INDICATED ON A PANEL WITH A LIGHT WHICH LIGHTS UP UPON ACTIVATION OF THE ALARM SYSTEM.

5. THE POWER SOURCE FOR THE ALARM SYSTEM SHALL BE:
(1) AN INDEPENDANT BATTERY WITH CONTINUOUS CHARGE; OR
(2) MAIN LINE POWER WITH A BACKUP BATTERY SYSTEM, WHICH SHALL BE CONNECTED AUTOMATICALLY SHOULD MAIN POWER FAIL.

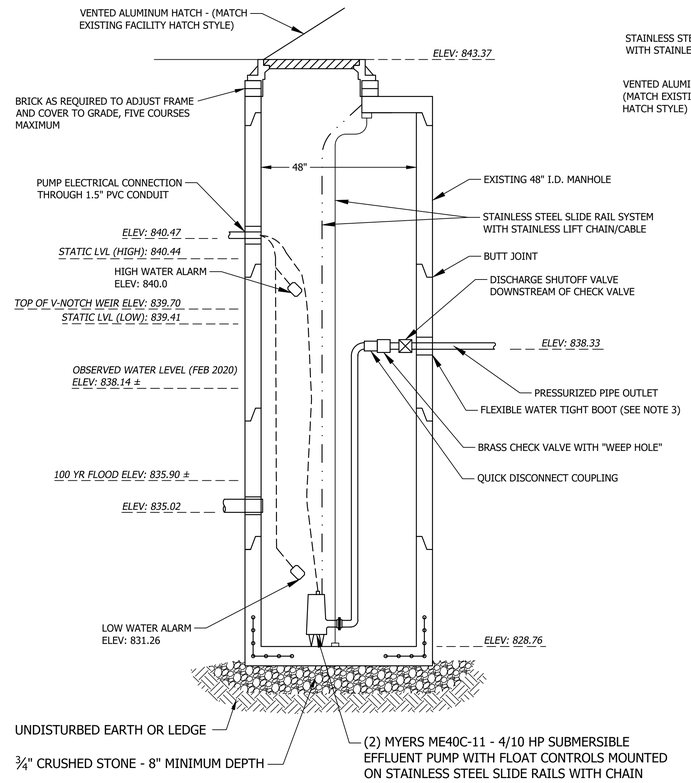
6. THE ALARM SIGNAL SHALL BE TRANSMITTED THROUGH A 24 HOUR PER DAY, 7 DAY PER WEEK NOTIFICATION SYSTEM TO THE APPROPRIATE UTILITY OPERATOR.

7. THE ALARM SHALL INCLUDE A LOCAL AUDIBLE ENUNCIATOR AND A LIGHT.

8. PROVISION SHALL BE MADE TO PERMIT SILENCING OF THE AUDIBLE ENUNCIATOR MANUALLY, AFTER THE ALARM HAS BEEN SOUNDED, BUT THE LIGHT SHALL CONTINUE UNTIL THE ALARM CONDITION HAS BEEN RECTIFIED.

9. ALARM SIGNALS FOR PRIVATELY-OPERATED SEWAGE PUMPING STATIONS SHALL BE TRANSMITTED TO THE RESPONSIBLE MAINTENANCE PERSON DIRECTLY OR VIA AN ANSWERING SERVICE.

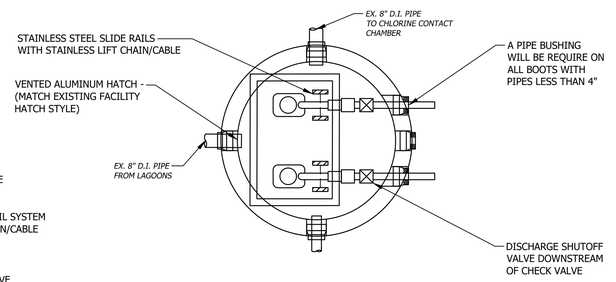
10. IF A CENTRAL SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM EXISTS AT THE WWTP, THE PUMPING STATION ALARMS SHALL BE CONNECTED TO THE SCADA SYSTEM USING PROGRAMMABLE LOGIC CONTROLLER (PLC) TECHNOLOGY.



EXISTING MANHOLE PUMP UPGRADE DETAIL & NOTES

NOT TO SCALE

PUMP STATION WORK NOT INCLUDED IN CONTRACT #1



PUMP STATION NOTES

1. UTILIZE EXISTING PUMP MANHOLE (PMH) WITH PRESCRIBED UPGRADES. DEPTH TO INVERT IS APPROXIMATED USING DESIGN DRAWINGS, COULD NOT LOCATE DURING SURVEY. MAINTAIN EXISTING INVERT ELEVATIONS AS SHOWN.

2. INSPECT BUTYL RUBBER JOINT SEALANT; RESEAL AS NECESSARY

3. UTILIZE KOR-N-SEAL BOOT (TYP.) FOR CONDUIT AND OUTLET INVERT IF NOT ALREADY INSTALLED AND FOR ADDITIONAL TANK PENETRATIONS AS NECESSARY.

4. PROVIDE 4" XPS INSULATION AROUND TOP OF MANHOLE WHERE PIPE COVER IS < 4 FT.

5. THE SEWAGE PUMP STATION SHALL BE EQUIPPED WITH EITHER OF THE FOLLOWING;
(1) A RUNNING METER THAT INDICATED THE CUMULATIVE RUNNING TIME OF EACH PUMP; OR
(2) CONTINUOUS FLOW RECORDING AND TOTALIZER CAPACITY.

6. CONNECTIONS BETWEEN RAW, PARTIALLY TREATED, OR FULLY TREATED SEWAGE AND POTABLE WATER SHALL BE PROHIBITED UNLESS ADEQUATE BACKFLOW PREVENTION EQUIPMENT IS INSTALLED.

7. SUBMERSIBLE PUMPS FOR SEWAGE PUMPING STATIONS SHALL CONFORM TO THE NEC REQUIREMENTS ADOPTED BY REFEERENCE IN THE STATE BUILDING CODE PERSUANT TO RSA 155-A:1,IV, FOR INSTALLATION IN AREAS CLASSIFIED BY THE NEC AS CLASS I, DIVISION 1.

8. ELECTRICAL SYSTEMS AND COMPONENTS, INCLUDING MOTORS , LIGHTS, CABLE, CONDUITS, SWITCH BOXES, AND CONTROL CIRCUITS SHALL BE PROTECTED FROM FLOODING IN ACCORDANCE WITH ENV-WQ 705.01.

9. ELECTRICAL SYSTEMS AND COMPONENTS INCLUDING MOTORS, LIGHTS, CABLE, CONDUITS, SWITCH BOXES AND CONTROL CIRCUITS IN ENCLOSED OR PARTIALLY ENCLOSED SPACES WHERE FLAMMABLE MIXTURES OCCASIONALLY MAY BE PRESENT, INCLUDING RAW SEWAGE WET WELLS, SHALL BE CERTIFIED BY THEIR MANUFACTURER AS:
(1). COMPLYING WITH THE NEC REQUIREMENTS ADOPTED BY REFERENCE IN THE STATE BUILDING CODE PURSUANT TO RSA 155-A:1, IV, FOR CLASS I, DIVISION 1 LOCATIONS; OR
(2). BEING RATED FOR CLASS I DIVISION 2 REQUIREMENTS WHERE MECHANICAL VENTILATION IS PROVIDED IN ACCORDANCE WITH THE NFPA AS ADOPTED BY REFERENCE IN THE STATE FIRE CODE IN SAF-C 6000.

10. ALL ELECTRICAL EQUIPMENT AND WORK SHALL COMPLY WITH THE REQUIREMENTS OF NEC AS ADOPTED BY REFERENCE IN THE STATE BUILDING CODE PURSUANT TO RSA 155-A:1, IV, AND NFPA AS ADOPTED BY REFERENCE IN THE STATE FIRE CODE IN SAF-C 6000 IN EFFECT AT THE TIME OF INSTALLATION.

11. VENTILATION OF SUBMERSIBLE PUMP CHAMBERS OR SUCTION LIFT WET WELLS WHERE THERE IS NO OCCUPANCY FOR REGULAR MAINTENANCE PURPOSES MAY BE BY GRAVITY VENTILATION.

12. ACCESS DOORS TO WET WELLS SHALL HAVE WARNING SIGNS ON THE UNDERSIDE WHICH READ, "WARNING - HAZARDOUS AREA, ENTER ONLY WITH PROPER EQUIPMENT" OR "CONFINED SPACE, ENTRY BY PERMIT ONLY", AS APPROPRIATE. .

13. THE OWNER SHALL SUBMIT AN OPERATION AND MAINTENANCE MANUAL THAT PROVIDES INFORMATION AND GUIDANCE FOR DAY-TO-DAY OPERATION OF EACH SEWAGE PUMPING STATION TO THE DEPARTMENT WITHIN 60 DAYS FOLLOWING SUBSTANTIAL COMPLETION OF CONSTRUCTION OF THE PUMP STATION.

STANDARD TRENCH NOTES - SEWER

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE SHALL BE REPLACED WITH BEDDING MATERIAL. SEE ALSO NOTE 4.

2. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM ORGANIC MATTER, CLAY, AND/OR LOAM MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90-100% PASSING	¾ INCH SCREEN
20-55% PASSING	⅜ INCH SCREEN
0-10% PASSING	#4 SIEVE
0-5% PASSING	#8 SIEVE

3. SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 100% PASSES A ½ INCH SIEVE AND NOT MORE THAN 15% PASSES A #200 SIEVE.

4. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS, AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED FROM THE TRENCH DURING THE COURSE OF CONSTRUCTION, AFTER EXCLUDING DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL NOT APPROVED BY THE ENGINEER.

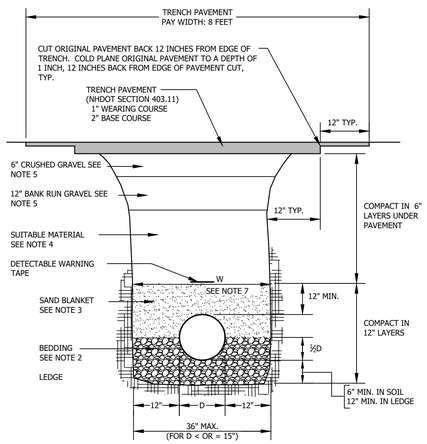
TRENCH BACKFILL IN CROSS-COUNTRY LOCATIONS SHALL BE SUITABLE MATERIAL AS DESCRIBED ABOVE, EXCEPT THAT TOP SOIL, LOAM, MUCK, OR PEAT MAY BE USED PROVIDED THAT THE COMPLETED CONSTRUCTION WILL BE STABLE AND ACCESS TO THE PIPE FOR MAINTENANCE AND RECONSTRUCTION IS PRESERVED. BACKFILL SHALL BE MOUNDED TO A HEIGHT OF SIX INCHES ABOVE THE ORIGINAL GROUND SURFACE

5. BASE COURSE FOR TRENCH REPAIR SHALL MEET THE REQUIREMENTS OF SECTION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

6. SHEETING: ALL TRENCH SUPPORTS SHALL CONFORM TO OSHA STANDARDS. CONTRACTOR IS RESPONSIBLE FOR OSHA COMPLIANCE AND WORKER SAFETY THROUGHOUT CONSTRUCTION.

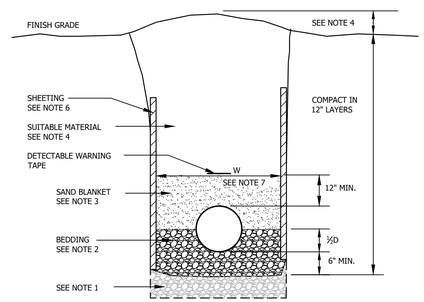
7. TRENCH DIMENSIONS: W = MAXIMUM ALLOWABLE TRENCH WIDTH MEASURED 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER (D) OR LESS, W SHALL BE NO MORE THAN 36 INCHES; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS THE PIPE OUTSIDE DIAMETER. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE. THE MAXIMUM ALLOWABLE TRENCH PAVEMENT PAYMENT WIDTH SHALL BE 8 FEET CENTERED OVER PIPE.

8. PIPE INSULATION AT STORM DRAIN CROSSING: INSTALL 2" THICK RIGID FOAM INSULATION OVER SEWER AT STORM DRAIN CROSSINGS, EXTEND INSULATION 4 FEET EITHER SIDE OF STORM DRAIN ALONG SEWER.



NOTE:
MINIMUM BEDDING DEPTH AND MAXIMUM PAYMENT LIMIT FOR LEDGE EXCAVATION = ½D (12" MINIMUM)

LEDGE/SUB PAVEMENT CONSTRUCTION



EARTH CONSTRUCTION WITH OR WITHOUT SHEETING

STANDARD TRENCH SECTIONS

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WATER TREATMENT & DISPOSAL FACILITY

CONTRACT #1 - RAPID INFILTRATION BASIN INSTALLATION

SEWER NOTES AND DETAILS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

NEW HAMPSHIRE MICHAEL H DUFFY No. 8030 LICENSED PROFESSIONAL ENGINEER

DATE: JAN 2021	PROJECT #: 19878
ENGIN'D BY: MFD	DRAWN BY: AST
CHECK'D BY: MFD	ARCHIVE #: -

C3.2

last revised: 2007 DEC 26

STONE SPECIFICATIONS

2.1 MATERIALS - STONE FILL

A. MATERIALS SHALL MEET THE REQUIREMENTS OF SECTION 585, STONE FILL, NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (NHS) FOR THE APPROPRIATE ITEM AS INDICATED ON THE DRAWINGS.

B. STONE FOR STONE FILL SHALL BE APPROVED QUARRY STONE, OR BROKEN ROCK OF A HARD, SOUND, AND DURABLE QUALITY. THE STONES AND SPALLS SHALL BE SO GRADED AS TO PRODUCE A DENSE FILL WITH A MINIMUM OF VOIDS.

1. **CLASS A STONE** SHALL BE IRREGULAR IN SHAPE WITH APPROXIMATELY 50 % OF THE MASS HAVING A MINIMUM VOLUME OF 12 CUBIC FEET, APPROXIMATELY 30 % OF THE MASS RANGING BETWEEN 3 AND 12 CUBIC FEET, APPROXIMATELY 10 % OF THE MASS RANGING BETWEEN 1 AND 3 CUBIC FEET, AND THE REMAINDER OF THE MASS COMPOSED OF SPALLS.

2. **CLASS B STONE** SHALL BE IRREGULAR IN SHAPE WITH APPROXIMATELY 50 % OF THE MASS HAVING A MINIMUM VOLUME OF 3 CUBIC FEET, APPROXIMATELY 40 % OF THE MASS RANGING BETWEEN 1 AND 3 CUBIC FEET, AND THE REMAINDER OF THE MASS COMPOSED OF SPALLS.

3. **CLASS C STONE** SHALL CONSIST OF CLEAN, DURABLE FRAGMENTS OF LEDGE ROCK, OF UNIFORM QUALITY, REASONABLY FREE FROM THIN OR ELONGATED PIECES. THE STONE SHALL BE MADE FROM ROCK WHICH IS FREE FROM TOPSOIL AND OTHER ORGANIC MATERIAL. THE STONE SHALL BE GRADED AS FOLLOWS:

SIEVE SIZE	PERCENTAGE PASSING BY WEIGHT
12 INCH	100
4 INCH	50-90
1-1/2 INCH	0-30
3/4 INCH	0-10

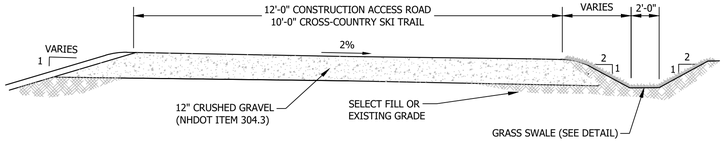
4. **CLASS D STONE** SHALL CONSIST OF CRUSHED STONE, GRAVEL, OR OTHER APPROVED INERT MATERIALS WITH SIMILAR CHARACTERISTICS OR COMBINATIONS THEREOF, HAVING HARD, STRONG, DURABLE PARTICLES, FREE FROM SURFACE COATING AND INJURIOUS AMOUNTS OF SOFT, FRIABLE, OR LAMINATED PIECES, AND FREE OF ALKALINE, ORGANIC, OR OTHER HARMFUL MATTER. THE STONE SHALL BE STANDARD STONE SIZE 467 (NO. 4 TO 1-1/2").

5. **EROSION STONE** SHALL BE IRREGULAR IN SHAPE WITH APPROXIMATELY 50% OF THE MASS HAVING A MINIMUM DIMENSION BETWEEN 6-INCHES AND 8-INCHES, APPROXIMATELY 40% OF THE MASS HAVING A MINIMUM DIMENSION BETWEEN 2-INCHES AND 6-INCHES AND THE REMAINDER OF THE MASS COMPOSED OF SPALLS.

6. **SPALLS** FOR FILLING VOIDS SHALL CONSIST OF A MIXTURE OF STONES OR ROCK FRAGMENTS AND PARTICLES WITH 95 TO 100% PASSING THE 3-INCH SIEVE AND 25 TO 70% PASSING THE NO. 4 SIEVE.

C. MINIMUM DEPTH OF STONE LAYER SHALL CONFORM TO THE FOLLOWING

STONE SIZE CLASS	MIN. DEPTH
EROSION STONE	12"
CLASS C	12"
CLASS B	18"
CLASS A	30"



CONSTRUCTION ACCESS ROAD/CROSS COUNTRY SKI TRAIL CROSS SECTION

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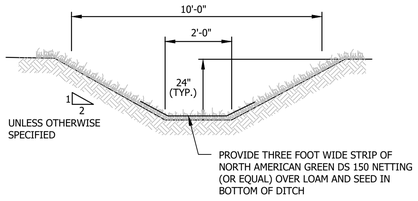

GRASS LINED DITCH DETAIL

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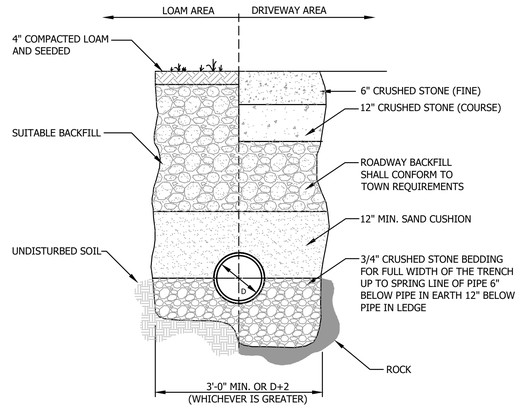

TYPICAL DRAINAGE TRENCH DETAIL

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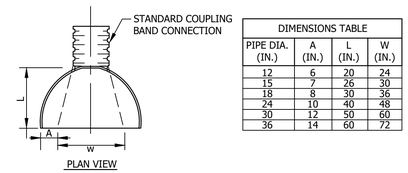
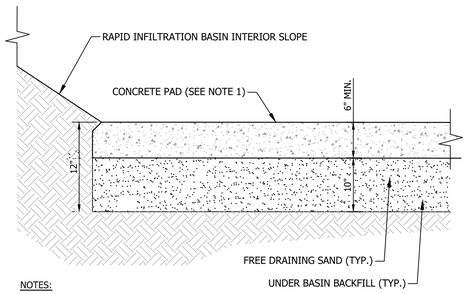


DIMENSIONS TABLE			
PIPE DIA. (IN.)	A (IN.)	L (IN.)	W (IN.)
12	6	20	24
15	7	26	30
18	8	30	36
24	10	40	48
30	12	50	60
36	14	60	72

FLARED END SECTION DETAIL

NO SCALE

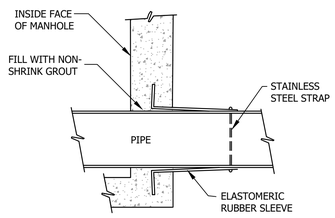


NOTES:

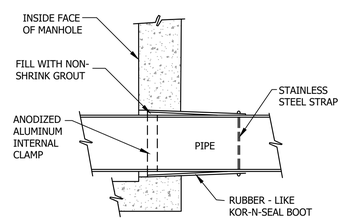
1. CONCRETE SHALL BE AIR-ENTRAINED TO PREVENT FREEZE-THAW DAMAGE.
2. CONTRACTOR SHALL COMPACT ONLY THE SAND BASE COURSE DIRECTLY UNDERNEATH THE PAD PRIOR TO CONCRETE PLACEMENT. A 1' STONE SURROUND SHALL BE PROVIDED TO PREVENT SCOURING OF THE MATERIAL SURROUNDING SPLASH PAD.
3. PROPOSED SLAB TO BE CONSTRUCTED TO MATCH PROPOSED DRAINAGE PATTERN WITHIN THE RAPID INFILTRATION BASIN. THE PAD SHALL HAVE A 0.5% CROWN SLOPING IN THE DIRECTION OF THE BASE OF THE BASIN.

RIB OUTLET SPLASH PAD

NOT TO SCALE



LOCK-JOINT FLEXIBLE MANHOLE SLEEVE



KOR-N-SEAL JOINT SLEEVE

JOINTING DETAILS

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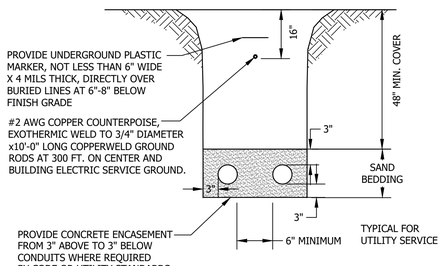

CONDUIT / DITCH DETAIL

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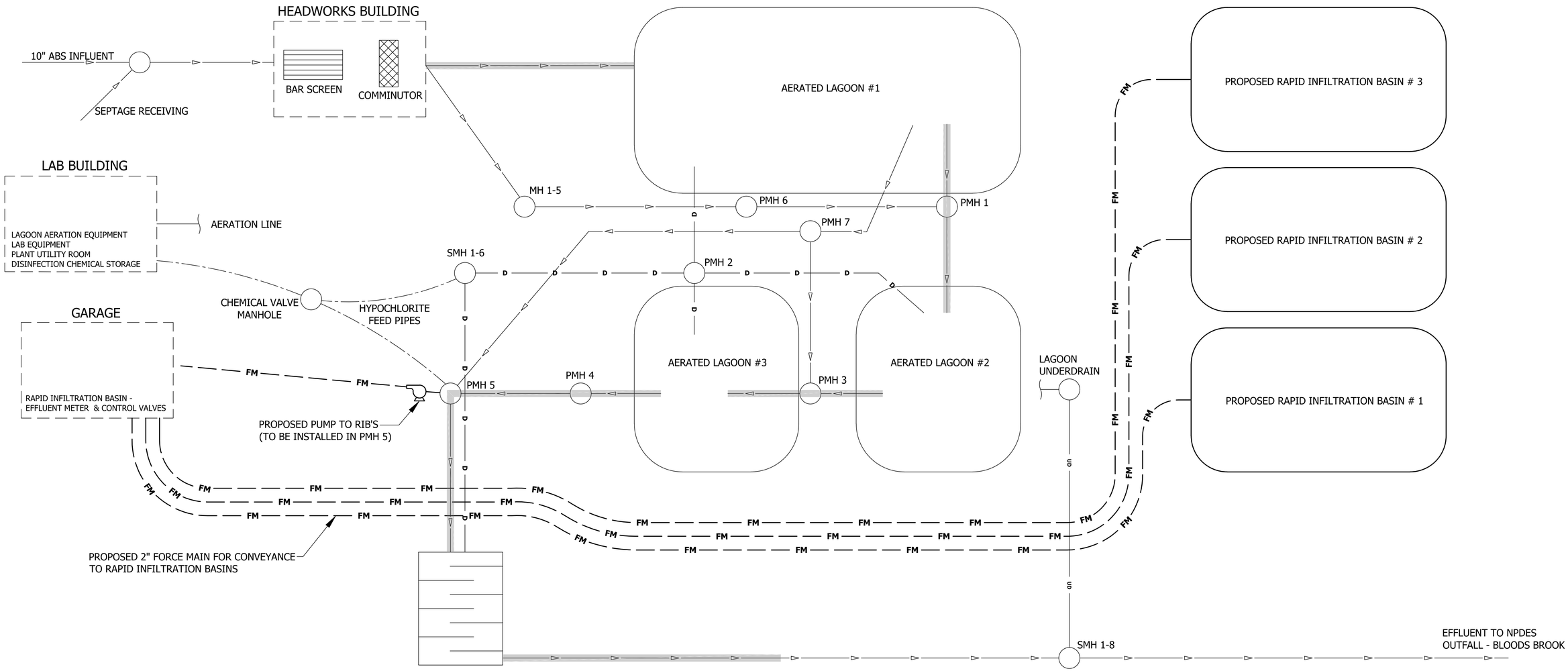

FLOW PROCESS DIAGRAM - MERIDEN VILLAGE WATER DISTRICT

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CURRENT LONGEST FLOW ROUTE

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PROCESS FLOW DIAGRAM

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EXHIBIT