

LOCATION MAP

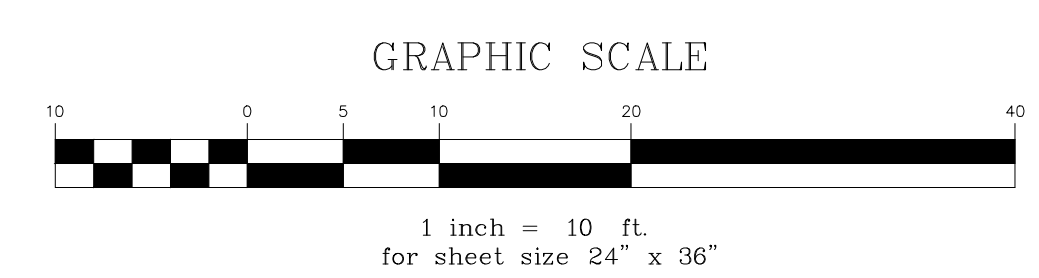
SCALE: 1" = 1,000'

EXISTING CONDITIONS LEGEND

- APPROXIMATE PROPERTY LINE
- - - 769 1-FT CONTOUR INTERVAL
- - - 770 5-FT CONTOUR INTERVAL
- EDGE OF PAVEMENT/CURB
- APPROXIMATE LINE STRIPING
- SD [Symbol] STORMLINE/CATCH BASIN/DRAINAGE MANHOLE
- S [Symbol] SEWERLINE/SANITARY MANHOLE
- W [Symbol] WATERLINE/VALVE/HYDRANT
- OHE [Symbol] OVERHEAD POWERLINE/POWERTPOLE/LIGHTPOLE
- [Tree Symbol] EXISTING TREE
- [Sign Symbol] EXISTING SIGN
- [Boring Symbol] SOIL BORING LOCATION

SURVEY NOTES

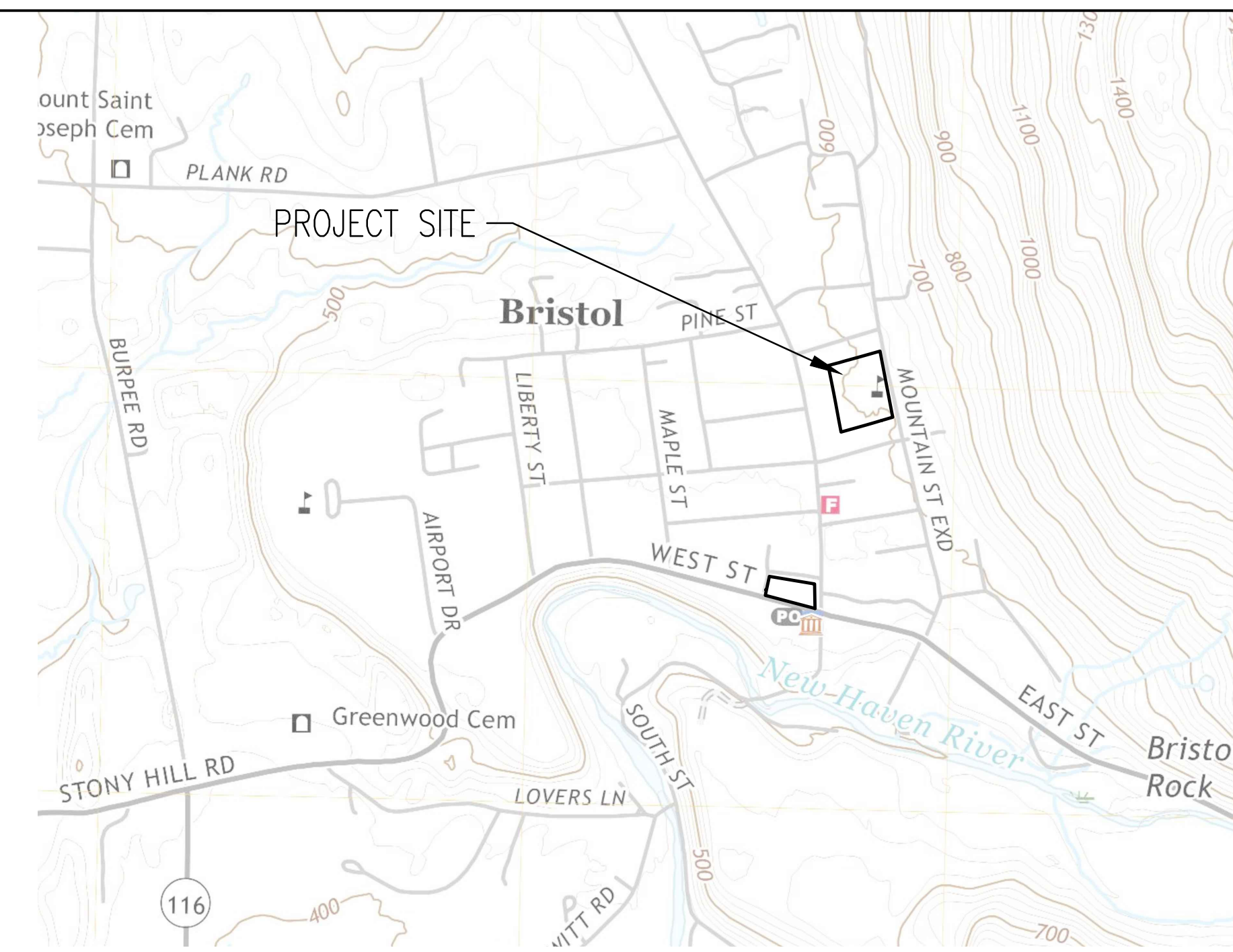
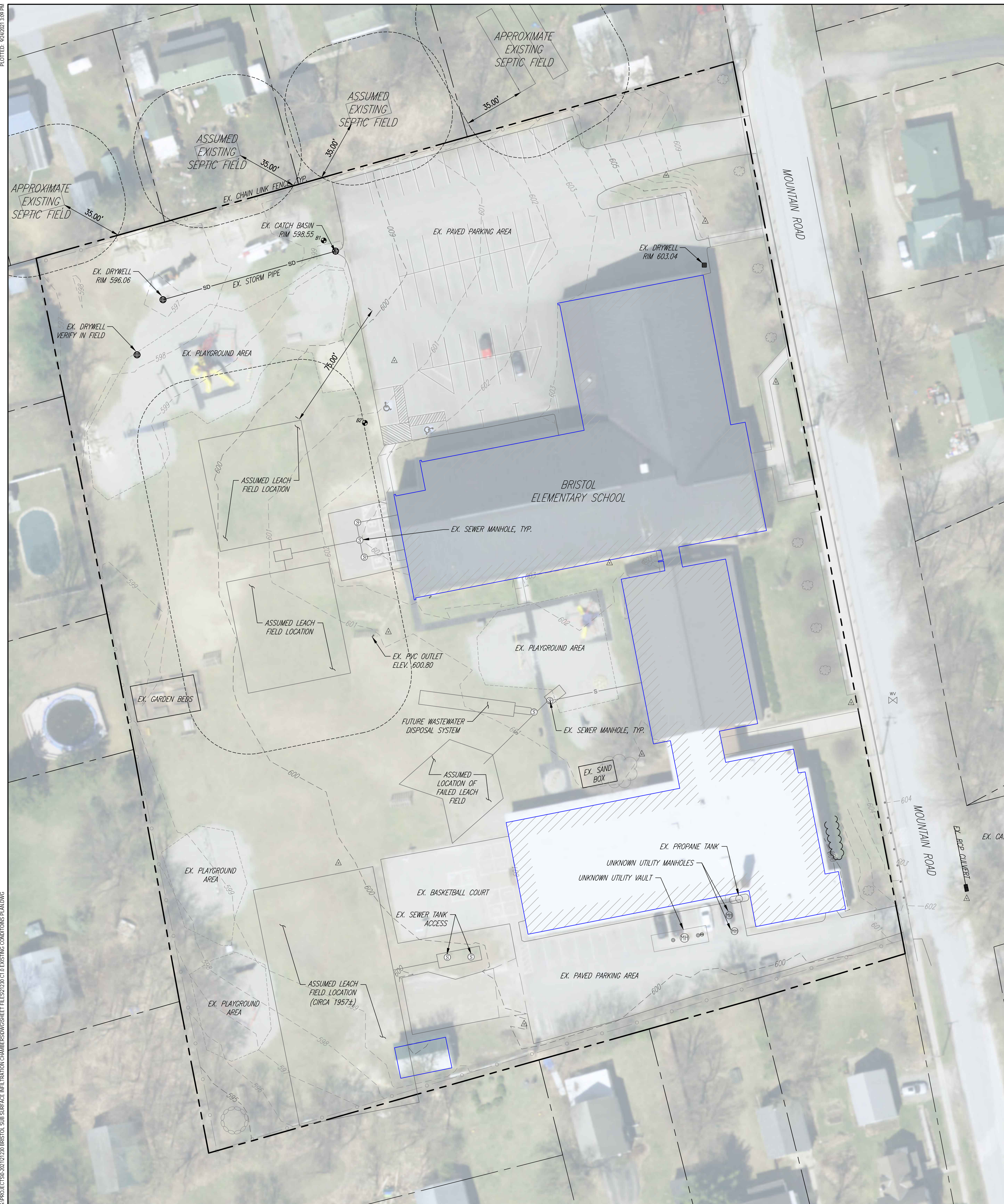
1. EXISTING PHYSICAL FEATURES AND TOPOGRAPHY SHOWN HERE HAS BEEN TAKEN FROM A SURVEY PERFORMED BY LATITUDES LAND SURVEYING, LLC IN JUNE/JULY OF 2021.
2. PROPERTY LINES ARE BASED ON INFORMATION PROVIDED BY VERMONT CENTER FOR GEOGRAPHIC INFORMATION AND ARE APPROXIMATE ONLY.
3. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.
4. NORTH ORIENTATION IS REFERENCED TO APPROXIMATE VERMONT GRID NORTH DERIVED FROM GPS READINGS OBSERVED BY OTHERS.
5. ELEVATIONS ARE REFERENCED TO APPROXIMATE NAVD 88 DERIVED FROM GPS READINGS OBSERVED BY OTHERS.
6. EXISTING UTILITIES SHOWN ON PLANS WERE TAKEN FROM FIELD OBSERVATIONS OF VISIBLE UTILITIES AND PAINTED MARKINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING UTILITY LOCATIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN UTILITIES AS SHOWN AND AS FOUND. THE CONTRACTOR SHALL CONTACT DIG SAFE (811 or 888-344-7233) A MINIMUM OF 72 HOURS, BUT NOT INCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO ANY CONSTRUCTION.



Stamp	
Date	
Description	
No.	
ENGINEERING VENTURES PC 208 Flynn Avenue, Suite 2A, Burlington, VT 05401 s 802-863-6225 85 Mechanic Street, Suite E2-3, Lebanon, NH 03766 s 603-442-9333 414 Union Street, Schenectady, NY 12305 s 518-630-9614 www.engineeringventures.com	
Addison County Regional Planning Commission Maddison Shropshire, Water Quality Planner 14 Somerville Street, Middlebury, VT 05753 mshropshire@acrpc.org	
Existing Conditions Plan School Street Site School Street and School 1 & 2 Subsurface Infiltration Chamber Project Town of Bristol, Addison County, Vermont	
Sheet Title:	
Project Title:	
EV Project #	21230
Drawn By:	HKW
Checked By:	PB
Scale:	1" = 10'
Date:	09/24/2021 - 60% CDs
C1.0	

PLOTTED: 04/20/21 10:01 PM

S:\PROJECTS\2021\07\20 BRISTOL SUB SURFACE INFILTRATION CHAMBERS\DWG\SET FILE\EXISTING CONDITIONS PLANNING



LOCATION MAP

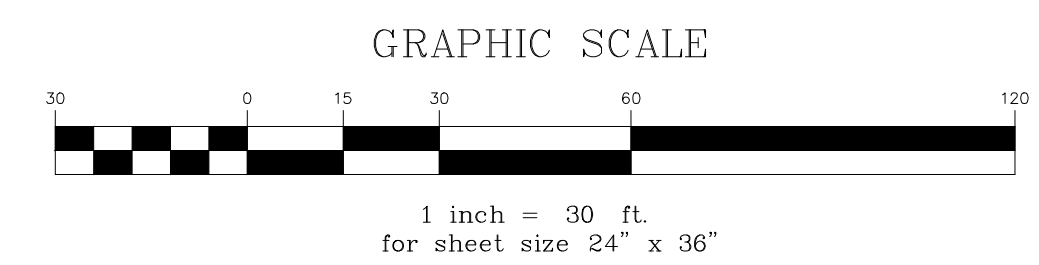
SCALE: 1" = 1,000'

EXISTING CONDITIONS LEGEND

- APPROXIMATE PROPERTY LINE
- - - 1-FT CONTOUR INTERVAL
- - - 5-FT CONTOUR INTERVAL
- EDGE OF PAVEMENT/CURB
- APPROXIMATE LINE STRIPING
- SD --- STORMLINE/CATCH BASIN/DRAINAGE MANHOLE
- S --- SEWERLINE/SANITARY MANHOLE
- W --- WATERLINE/VALVE/HYDRANT
- OHE --- OVERHEAD POWERLINE/POWERPOLE/LIGHTPOLE
- ☁ --- EXISTING TREE
- EXISTING SIGN
- B1 --- SOIL BORING LOCATION

SURVEY NOTES

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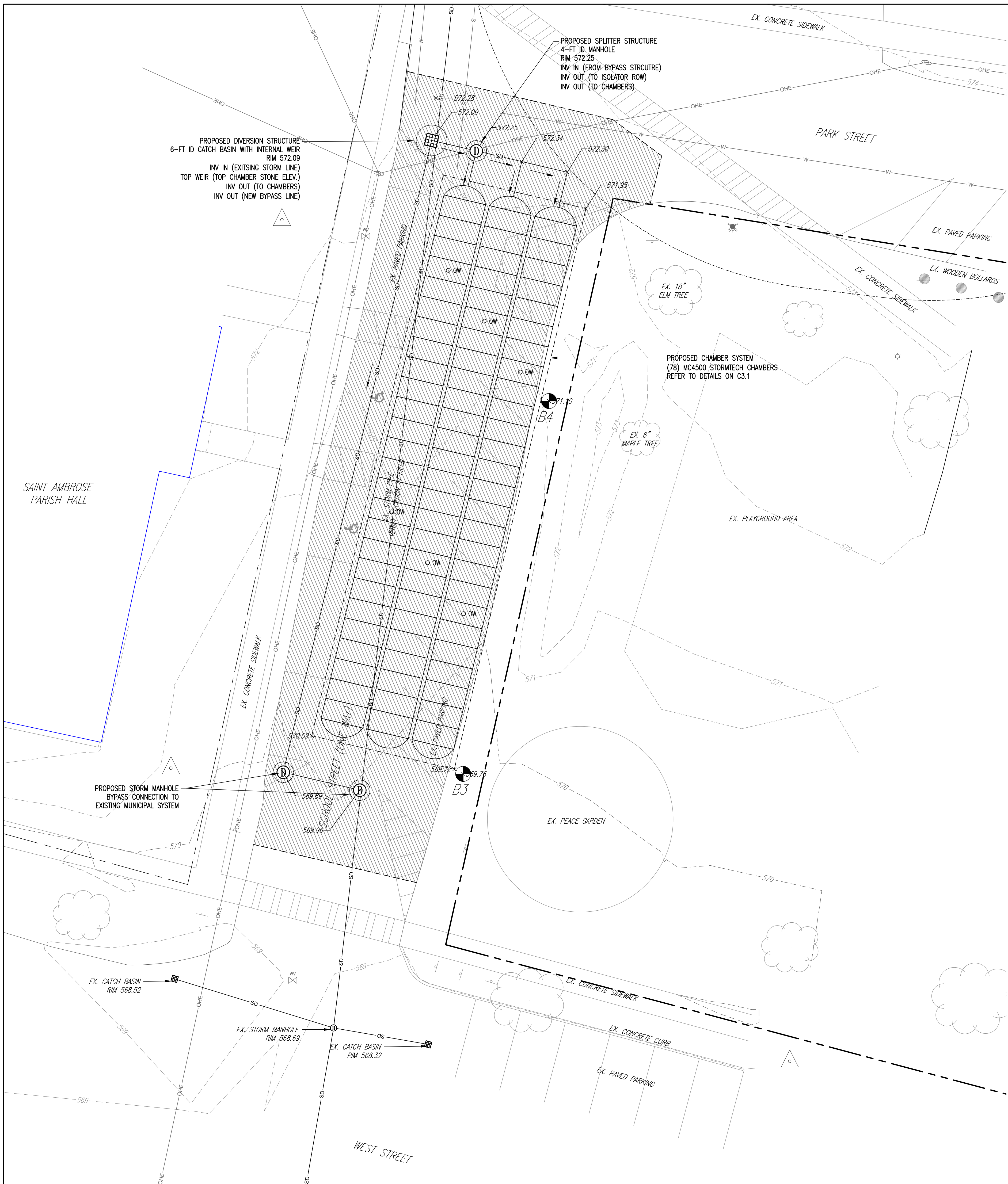
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 85 Mechanic Street, Suite E2.3, Lebanon, NH 03766 s 603-442-9333
 414 Union Street, Schenectady, NY 12305 s 518-630-9614
 www.engineeringventures.com

Addison County
 Regional Planning Commission
 Maddison Shropshire, Water Quality Planner
 14 Somersy Street, Middlebury, VT 05753
 mshropshire@acrpc.org

Existing Conditions Plan
 School 1 & 2 Sites
 School Street and School 1 & 2
 Subsurface Infiltration Chamber Project
 Town of Bristol, Addison County, Vermont

Sheet Title:	EV Project #	21230
Drawn By:	Drawn By:	HKW
Checked By:	Checked By:	PB
Scale:	Scale:	1" = 30'
Date:	Date:	09/24/2021 - 60% CDs

C1.1



PROPOSED CONDITIONS LEGEND

- 670 5-FT CONTOUR INTERVAL
- 671 1-FT CONTOUR INTERVAL
- SD STORM LINE
- CATCH BASIN/MANHOLE
- INFILTRATION CHAMBER SYSTEM
- OW OBSERVATION WELL LOCATION
- DIRECTION OF PIPE FLOW
- PROPOSED SPOT GRADE ELEVATION
- EXISTING SPOT GRADE ELEVATION
- PROPOSED PAVEMENT PATCH
- PROPOSED CONCRETE SIDEWALK REPLACEMENT

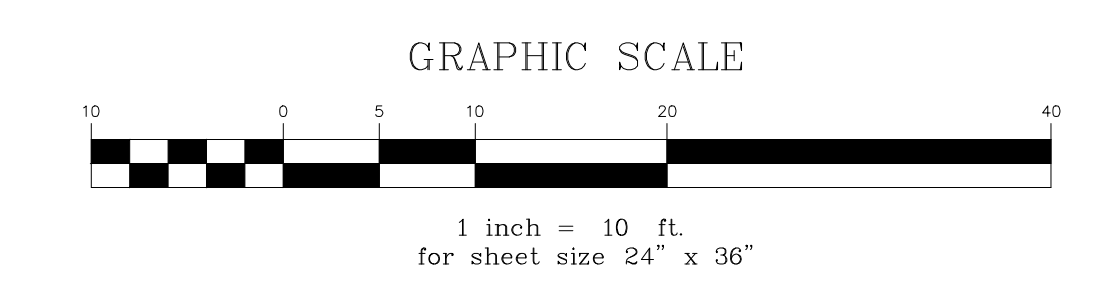
BASIS OF DESIGN

Park Site, School Street	
Drain Area	65183 sf 32.120 ac
Impervious	37428 sf 10.230 ac
Pervious	21.890 ac
1-ft Contour Interval Length	37175 ft
Hydraulic Length	2412 ft
Tc	81.5 min

Water Quality Sizing	
Precipitation	1 in
Rv	0.34
% Impervious	31.8 %
WQv =	39251 cubic feet

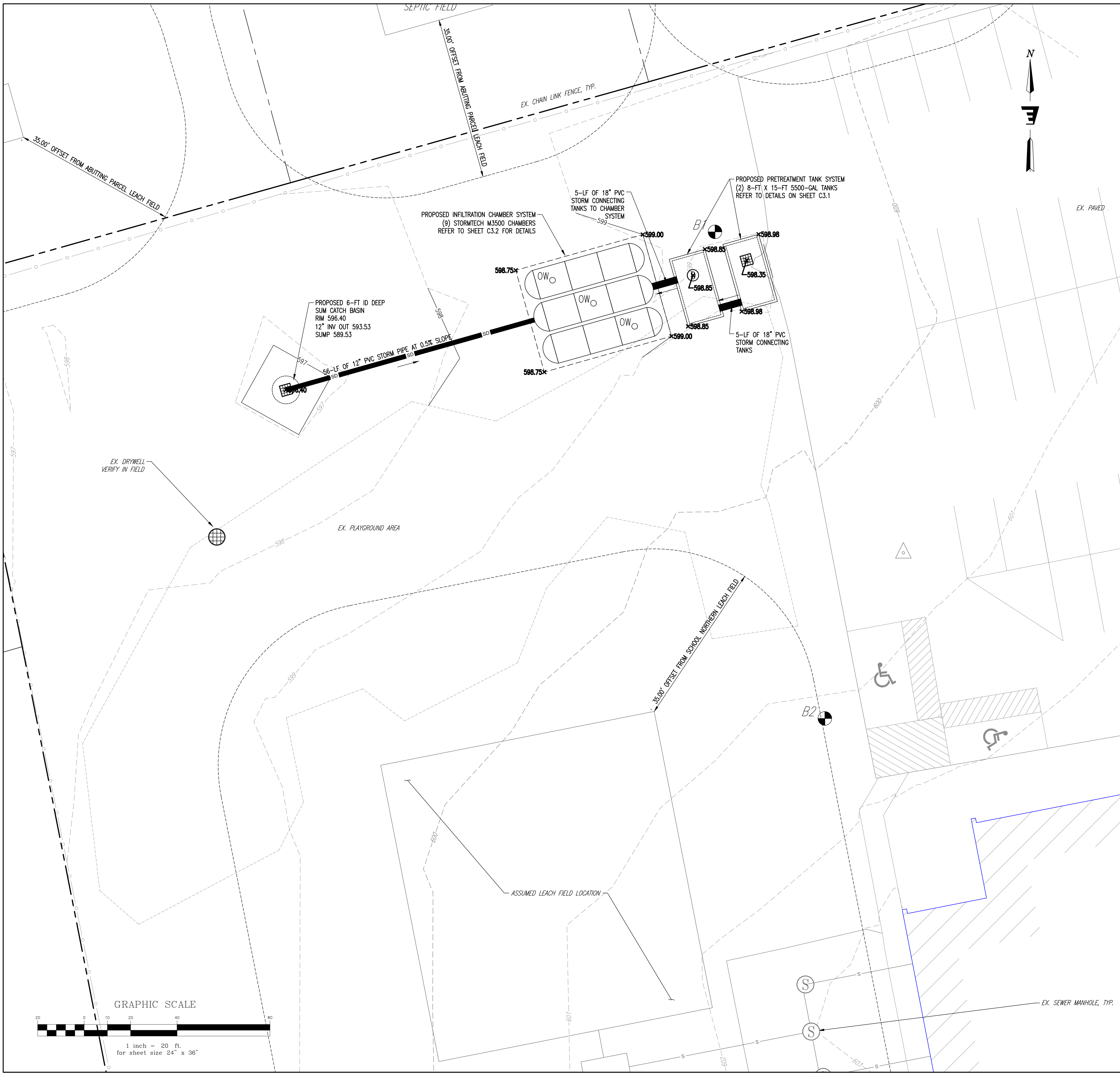
PEAK FLOW COMPARISON

	(78) MC4500 Infiltration Chambers		
	Pre Development	Post Development	% Reduction
1" WQ	3.41 cfs	0.67 cfs	80%
1-year	7.95 cfs	7.28 cfs	8%
5-year	11.83 cfs	9.48 cfs	20%
10-year	13.82 cfs	10.48 cfs	24%
25-year	16.58 cfs	10.90 cfs	34%
50-year	18.65 cfs	11.21 cfs	40%
100-year	20.80 cfs	11.53 cfs	45%



	Stamp
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Description	
No.	
Addison County Regional Planning Commission Middlebury, VT 05753 14 Somers Street, Middlebury, VT 05753 mshropshire@acrpc.org	
Proposed Site Plan School Street Site	School Street and School 1 & 2 Subsurface Infiltration Chamber Project Town of Bristol, Addison County, Vermont
EV Project # 21230 Drawn By: HKW Checked By: PB Scale: 1" = 10' Date: 09/24/2021 - 60% CDS	C2.0

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 PLOTTED: 09/20/21 10:06 AM



PROPOSED CONDITIONS LEGEND

- 670 — 5-FT CONTOUR INTERVAL
- 671 — 1-FT CONTOUR INTERVAL
- SD — STORM LINE
- ⊕ CATCH BASIN/MANHOLE
- ⊔ INFILTRATION CHAMBER SYSTEM
- OW OBSERVATION WELL LOCATION
- DIRECTION OF PIPE FLOW
- + PROPOSED SPOT GRADE ELEVATION
- × 667.40 EXISTING SPOT GRADE ELEVATION

BASIS OF DESIGN

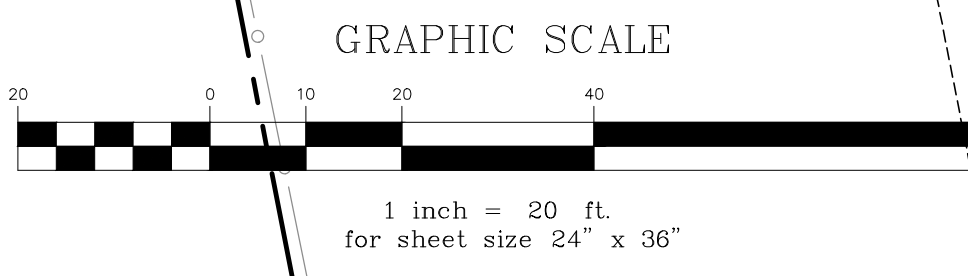
School Site Mountain Road Drainage Area 65183 sf 1.496 ac Impervious 37428 sf 0.859 ac Grass HSG A 0.637 ac		Water Quality Sizing Precipitation 1 in Rv 0.57 % Impervious 57.4 % WQv = 3079 cubic feet	
Sub Drainage Area to Parking Lot Tanks Drainage Area 46915 sf 1.077 ac Impervious 36772 sf 0.844 ac Grass HSG A 0.233 ac		Sub Drainage Area to Playground Basin Drainage Area 18268 sf 0.419 ac Impervious 656 sf 0.015 ac Grass HSG A 0.404 ac	
Average DA Slope 5.0% Hydraulic Length 328 ft Tc 11.4 min		Average DA Slope 4.1% Hydraulic Length 208 ft Tc 12.6 min	
Water Quality Volume Precipitation 1 in Rv 0.76 % Impervious 78.4 % WQv = 2953 cubic feet		Water Quality Volume Precipitation 1 in Rv 0.08 % Impervious 3.6 % WQv = 125 cubic feet	
Pretreatment 50% WQv required with infiltration rate > 2in/hr per VSSM 50% WQv 1477 cubic feet 11046 gallons 2 5523 gal tanks		Pretreatment 50% WQv required with infiltration rate > 2in/hr per VSSM 50% WQv 63 cubic feet	
Pretreatment Tank Sizing length 7 ft width 14 ft req. depth 7.50 ft		Pretreatment Deep Sump Basin Sizing inner dia 5 ft sump 4 ft volume 79 cf	

PEAK FLOW COMPARISON

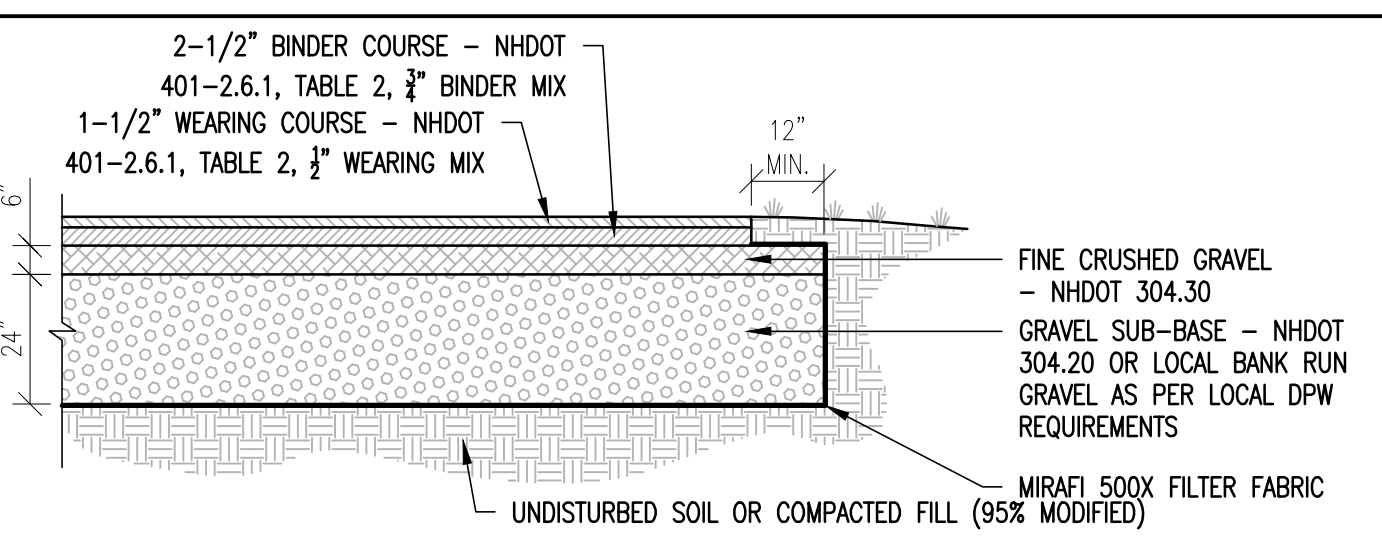
(9) MC3500 Infiltration Chambers

Storm Event	Peak Flows		
	Pre Development	Post Development	Percent Reduced
1" WQ	0.94 cfs	0.13 cfs	86%
1-year	2.16 cfs	1.44 cfs	33%
5-year	3.20 cfs	3.07 cfs	4%
10-year	3.74 cfs	3.73 cfs	0%
25-year	4.48 cfs	4.47 cfs	0%
50-year	5.03 cfs	5.02 cfs	0%
100-year	5.70 cfs	5.69 cfs	0%

100% WATER QUALITY TREATMENT
 OUTFLOW IS 100% INFILTRATED
 MINIMAL FLOW REDUCTION
 PONDING AREA IN PLAYGROUND
 SIGNIFICANTLY REDUCED.
 PEAK ELEVATION FOR 100-YEAR EVENT
 IS ESTIMATED AS 596.73'

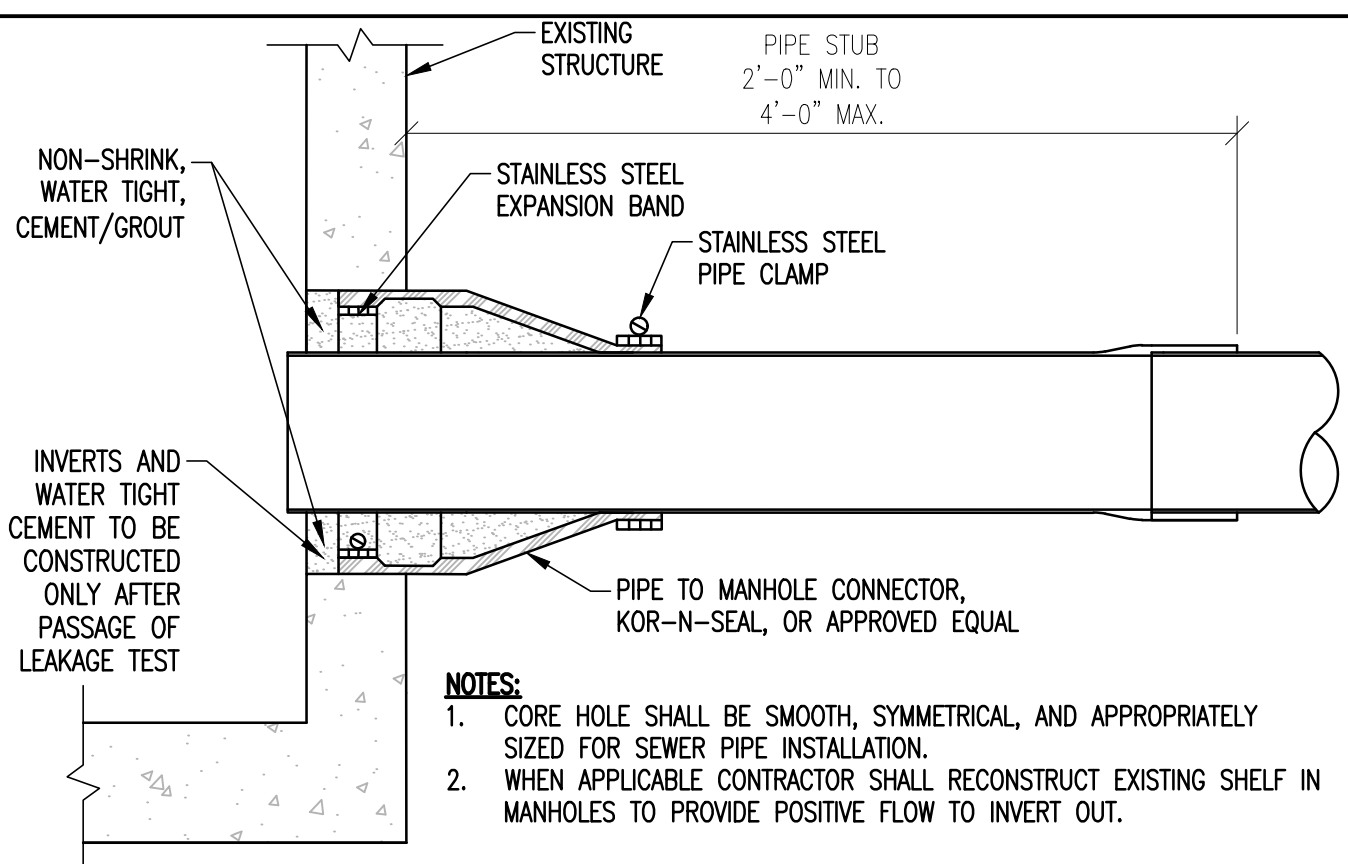


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Addison County Regional Planning Commission Middlebury Shropshire, Water Quality Planner 14 Seminary Street, Middlebury, VT 05753 mshropshire@acrpc.org	
Proposed Site Plan School 1 Site School Street and School 1 & 2 Subsurface Infiltration Chamber Project Town of Bristol, Addison County, Vermont	
Sheet Title:	
EV Project #	21230
Drawn By:	HKW
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C2.1	

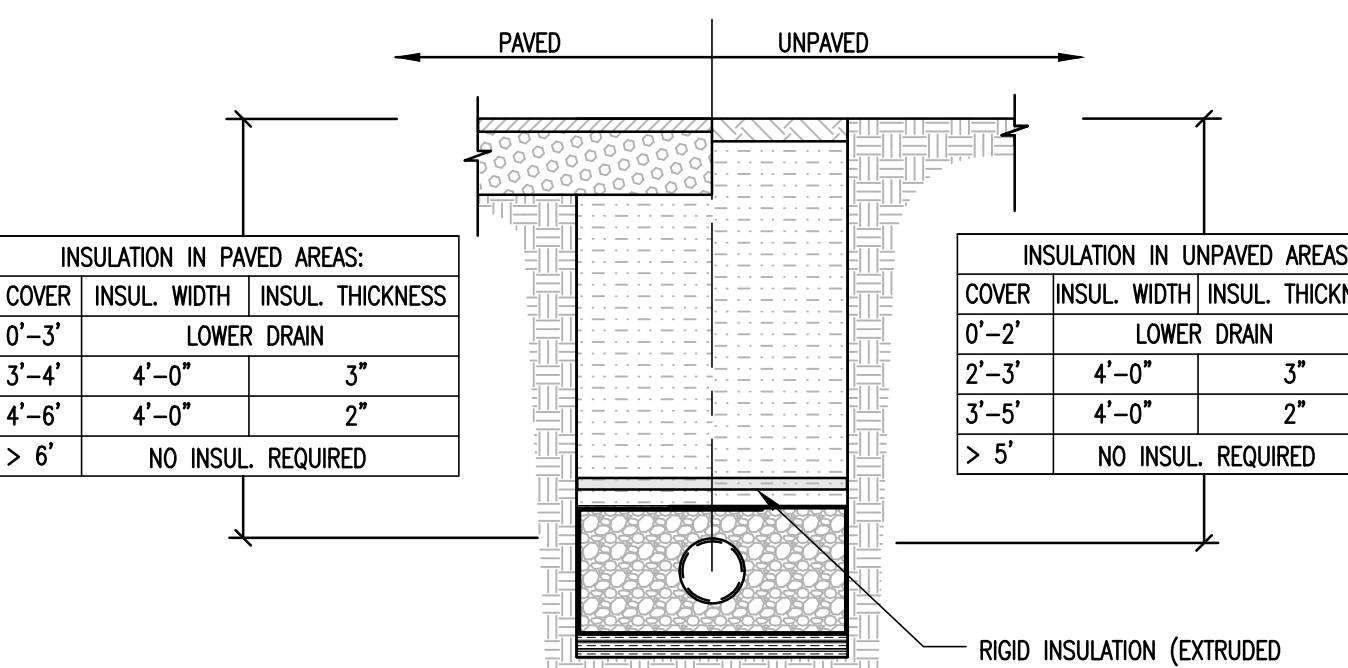


- NOTES:**
1. ALL SUBBASE MATERIALS SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO 95% MAXIMUM DENSITY ACCORDING TO ASTM D-1557 (MODIFIED PROCTOR).
 2. ROAD/PARKING LOT PAVEMENT CROSS SECTION BASED ON VTRANS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ITEM 401, TABLE 2.

PAVEMENT DETAIL NOT TO SCALE 1

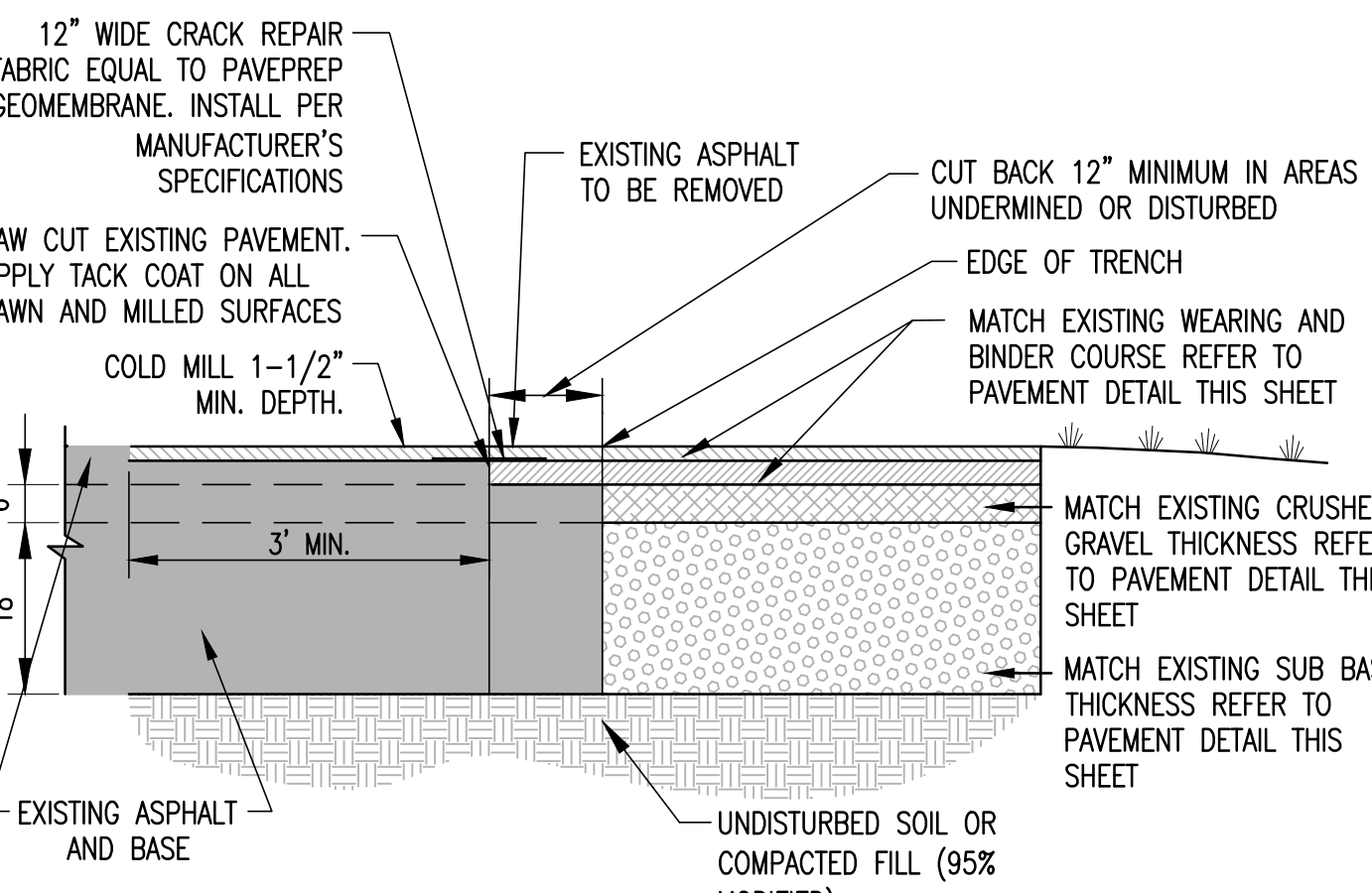


- NOTES:**
1. CORE HOLE SHALL BE SMOOTH, SYMMETRICAL, AND APPROPRIATELY SIZED FOR SEWER PIPE INSTALLATION.
 2. WHEN APPLICABLE CONTRACTOR SHALL RECONSTRUCT EXISTING SHELF IN MANHOLES TO PROVIDE POSITIVE FLOW TO INVERT OUT.



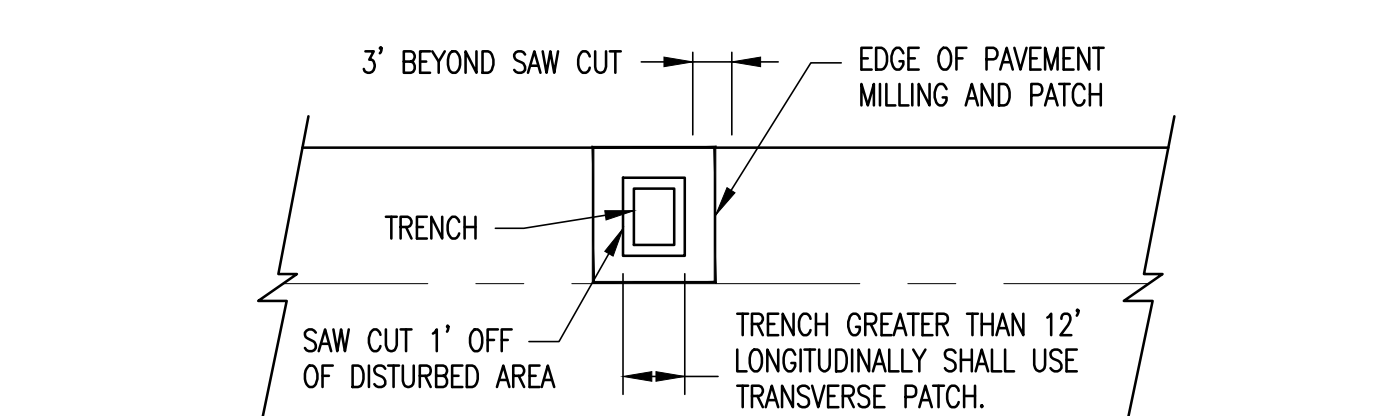
TRENCH NOTES
1. REFER TO APPLICABLE TRENCH DETAIL FOR SPECIFIC BACKFILL INFORMATION.

INSULATION OVER SHALLOW DRAIN DETAIL NOT TO SCALE 4

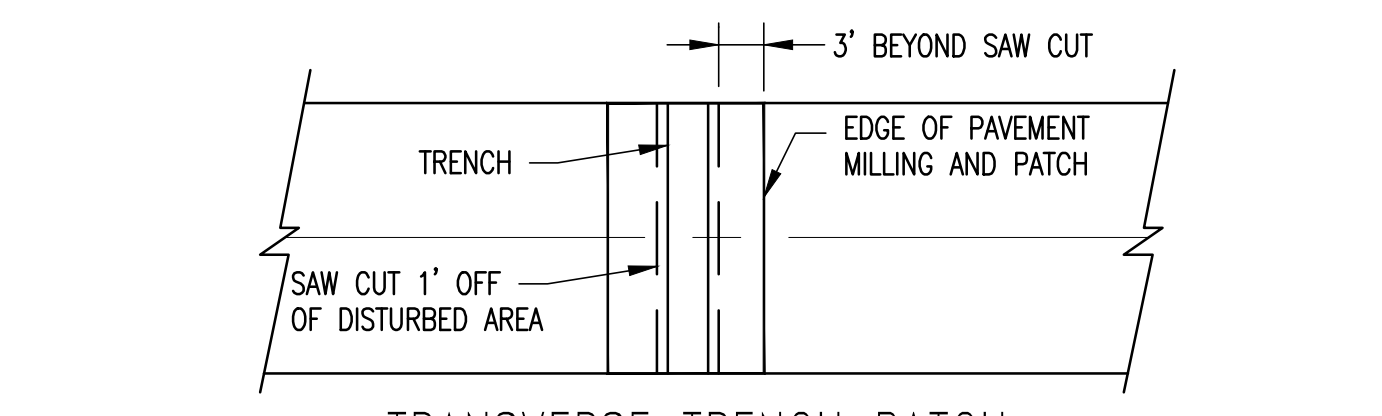


NOTE: THIS METHOD OF PAVEMENT JOINT SHALL BE USED FOR ANY APPLICATION OR CONSTRUCTION WHERE PROPOSED PAVEMENT AND BASE WILL BE CONNECTED TO EXISTING PAVEMENT AND BASE.

TRENCH CROSS SECTION DETAIL

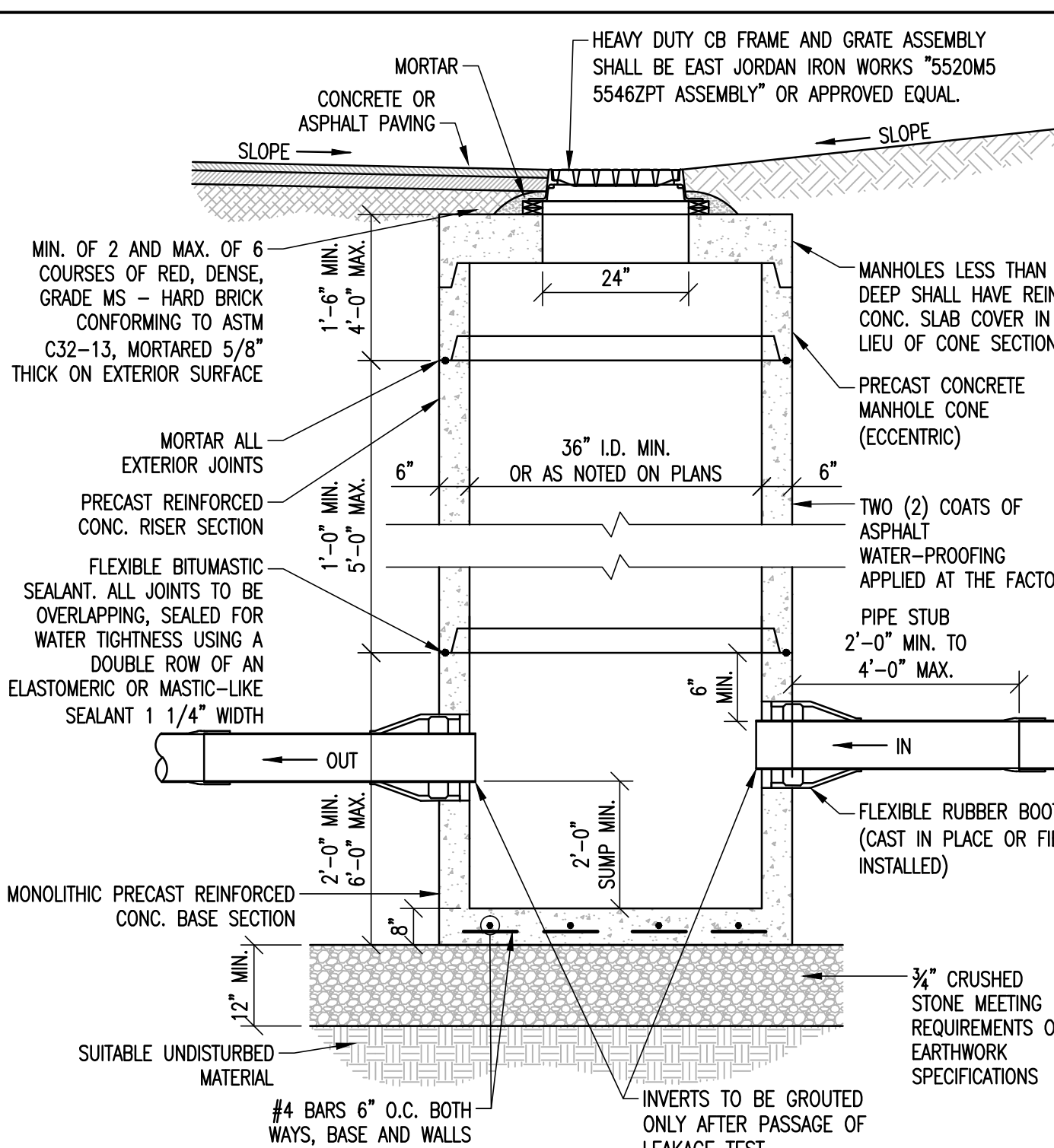


SINGLE LANE TRENCH PATCH



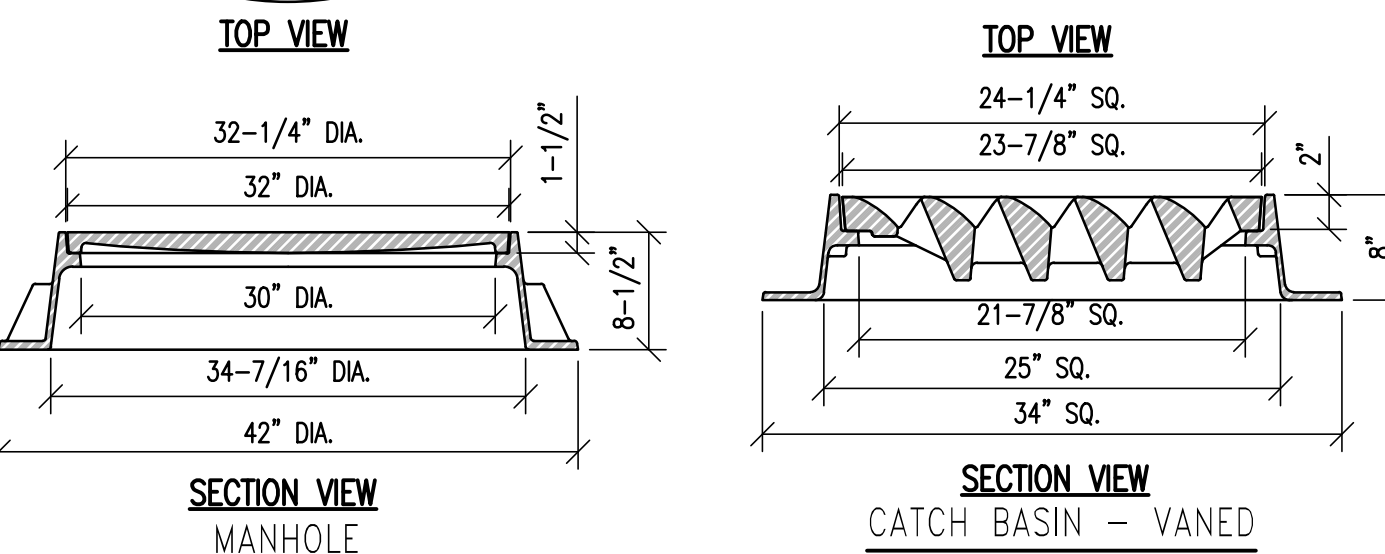
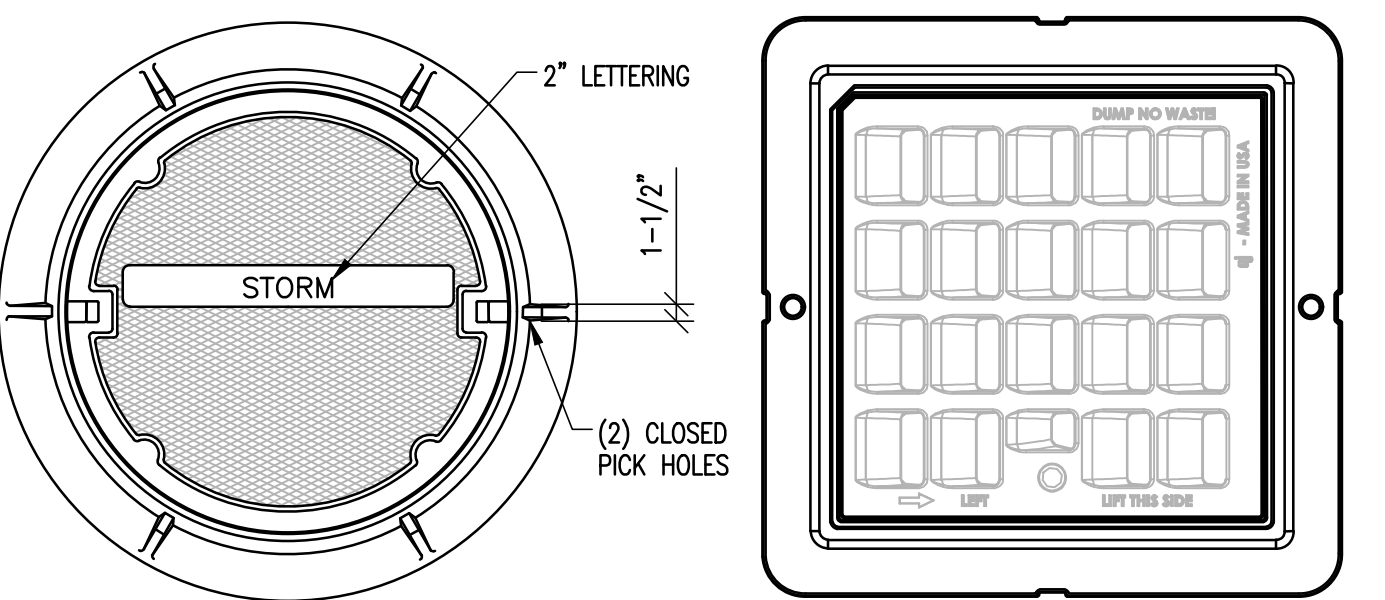
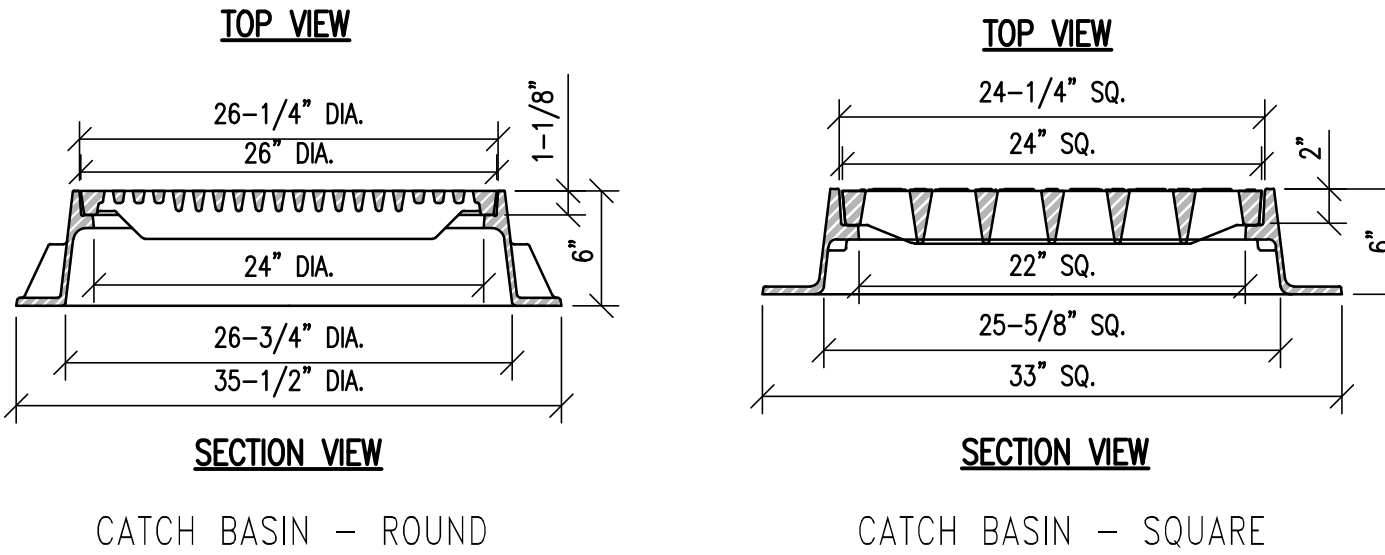
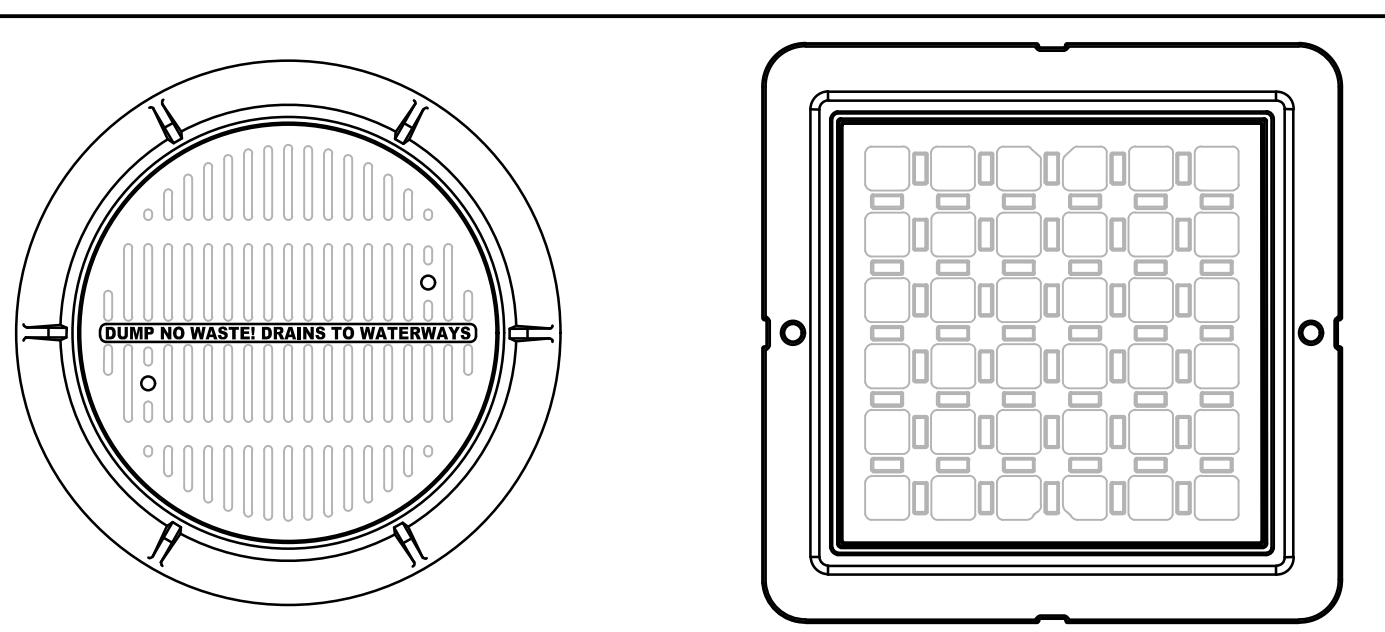
TRANSVERSE TRENCH PATCH

ASPHALT PAVEMENT TRENCH PATCH DETAIL NOT TO SCALE 2



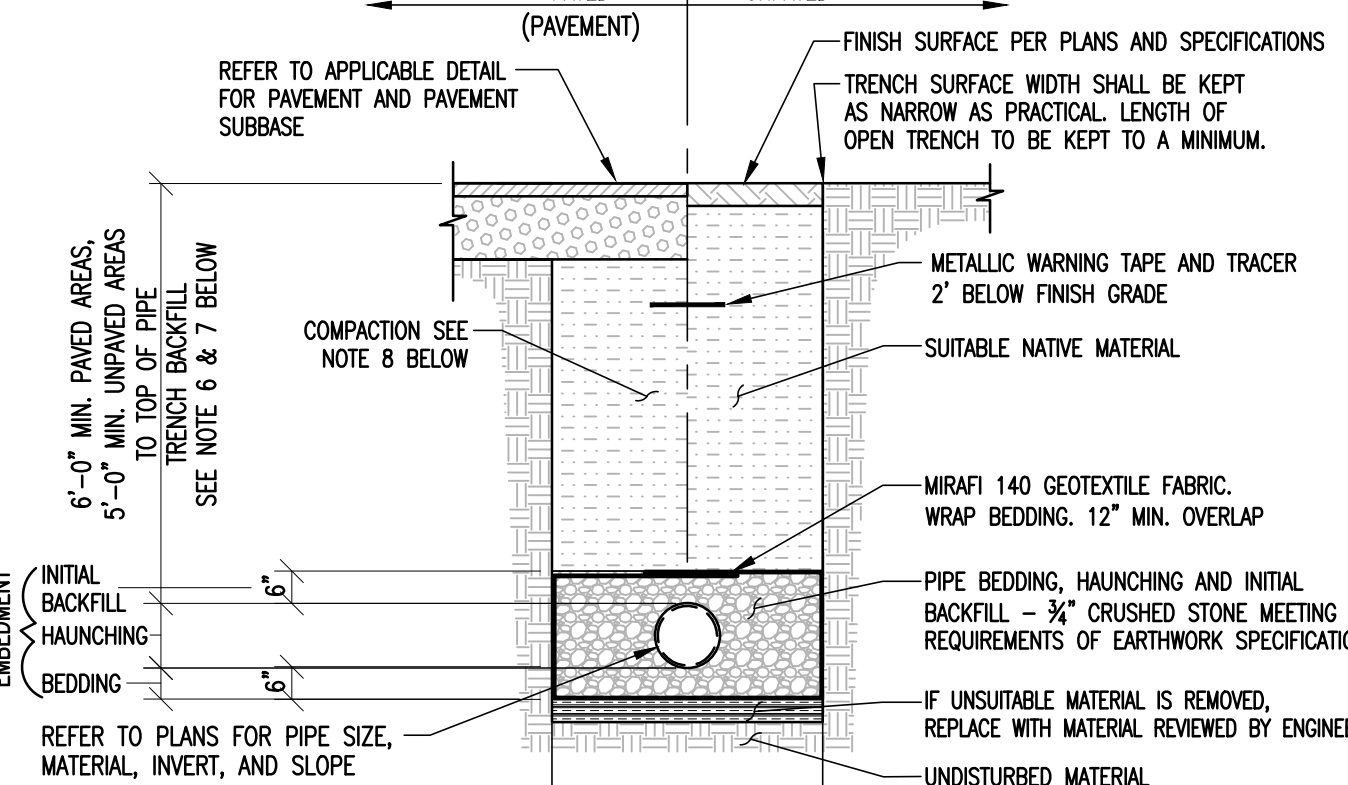
- NOTES:**
1. IF DEPTH OF MANHOLE IS 6 FT. OR LESS FROM RIM TO CENTERLINE INVERT, THEN A FLAT TOP WILL BE INSTALLED. IF DEPTH OF MANHOLE FROM RIM TO CENTERLINE INVERT IS MORE THAN 6 FT., THEN AN ECCENTRIC CONICAL TOP WILL BE INSTALLED.
 2. CATCH BASIN AND GRATE SHALL BE DESIGNED FOR H20 LOADING.

CATCH BASIN DETAIL NOT TO SCALE 7



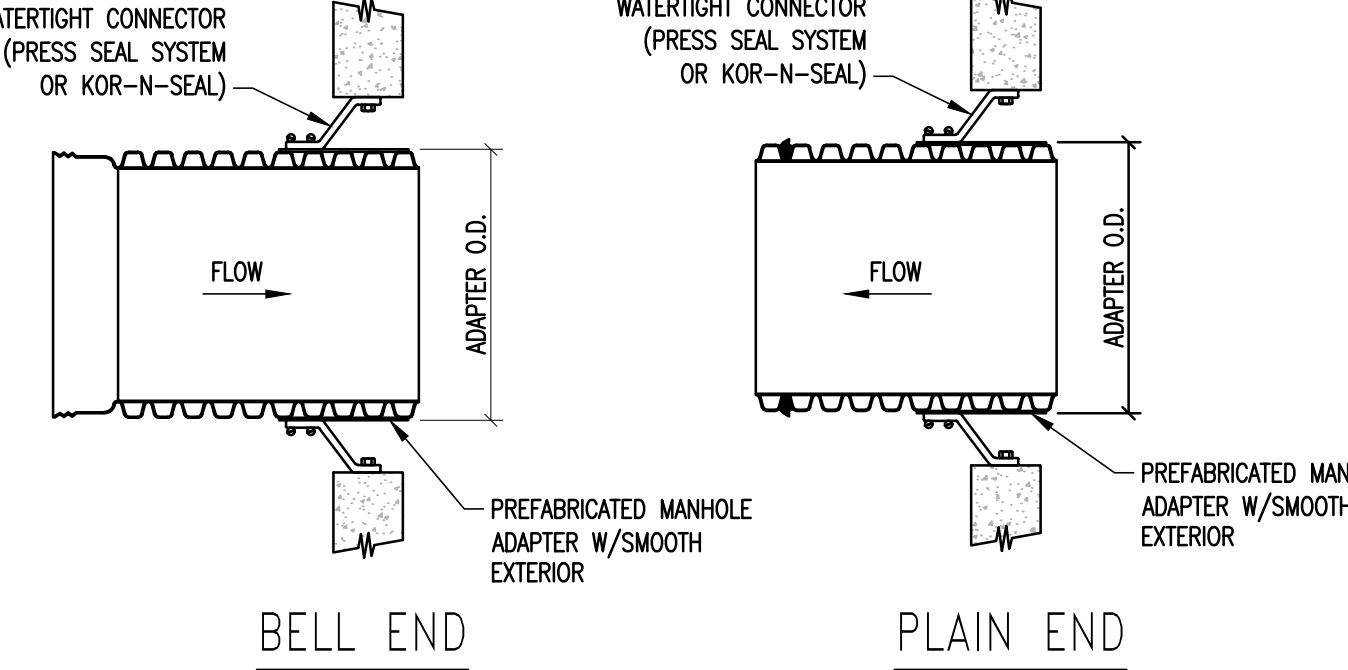
- NOTES:**
1. ALL DIMENSIONS SHOWN HERE ARE NOMINAL.
 2. COVER SHALL BE HEAVY DUTY (H-20) LOAD RATED.
 3. CATCH BASIN (SQUARE) FRAME AND GRATE ASSEMBLY SHALL BE EAST JORDAN IRON WORKS FRAME 5546Z (PRODUCT NUMBER 00554611 (4 FLANGE) OR 00554613 (3 FLANGE)) AND GRATE 5520M5 (PRODUCT NUMBER 005520B0) OR APPROVED EQUAL.
 3. CATCH BASIN (ROUND) FRAME AND GRATE ASSEMBLY SHALL BE EAST JORDAN IRON WORKS "2266Z 1040M3 SET" (PRODUCT NUMBER 00211033205) OR APPROVED EQUAL.
 3. CATCH BASIN - (VANED) FRAME AND GRATE ASSEMBLY SHALL BE EAST JORDAN IRON WORKS "5520M8 5521Z ASSEMBLY" (PRODUCT NUMBER 005520B142) OR APPROVED EQUAL. FRAME AND GRATE VANE DIRECTION SHALL BE "LEFT" OR "RIGHT" DEPENDING ON THE DIRECTION OF FLOW AT EACH BASIN.
 4. MANHOLE (MH) FRAME AND COVER ASSEMBLY SHALL BE EAST JORDAN IRON WORKS "1480A V1419 ASSEMBLY" OR APPROVED EQUAL.

STORMWATER MH COVERS AND CB GRATES NOT TO SCALE 9



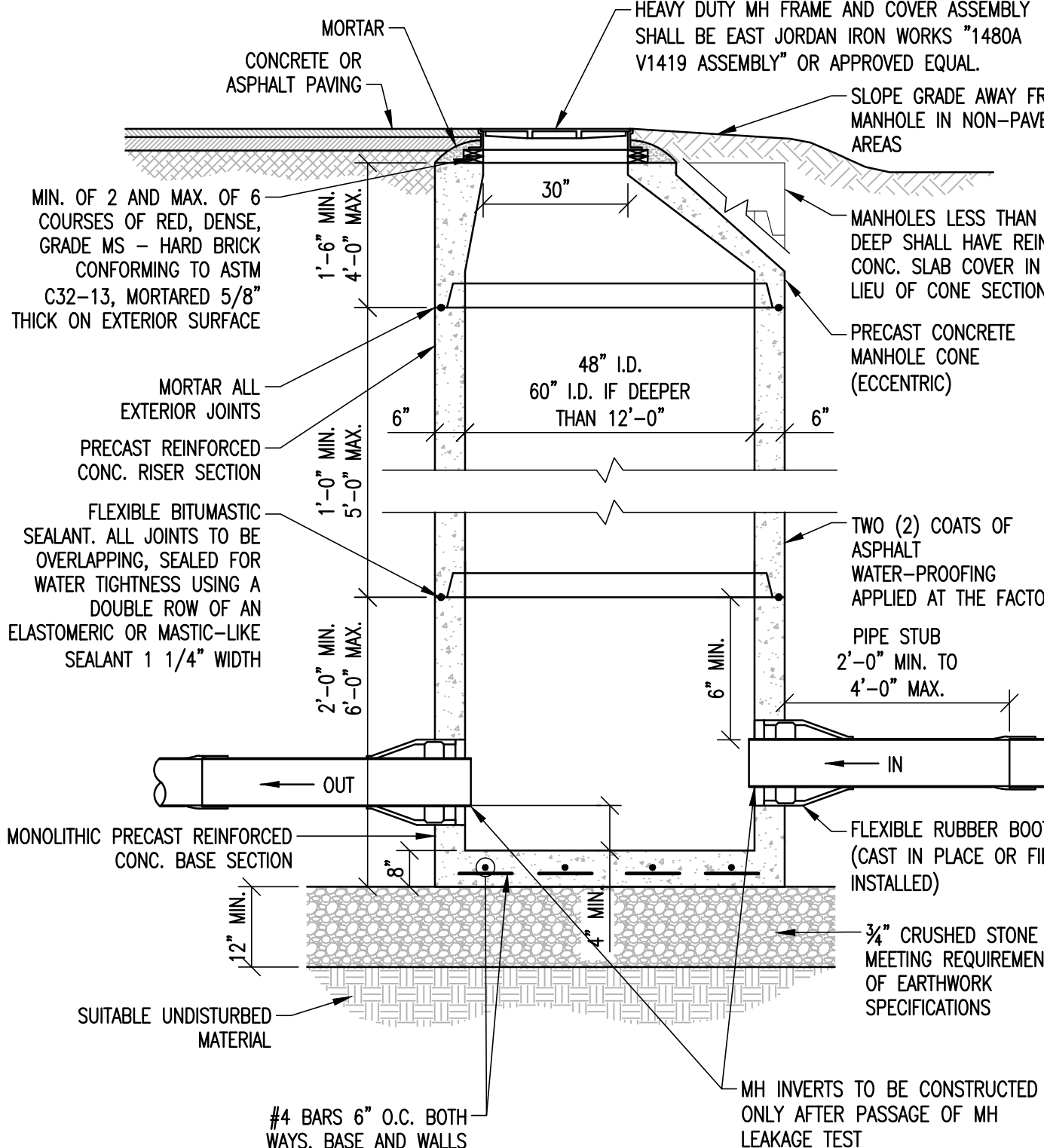
- NOTES:**
1. UNLESS OTHERWISE NOTED, ASSUME CLASS "C" SOILS. PERFORM ALL EXCAVATIONS TO OSHA REQUIREMENTS.
 2. BEDDING TO PROVIDE A FIRM, STABLE, CONTINUOUS AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.
 3. PROVIDE 6" OF COVER OVER DRAIN PIPE IN PAVED AREAS AND 5" OF COVER OVER PIPE IN UNPAVED AREAS. OTHERWISE, REFER TO INSULATION OVER SHALLOW DRAIN LINE DETAIL.
 4. WHEN APPLICABLE INSTALL PIPE WITH BELL ENDS DOWN SLOPE. PREVENT SEDIMENT FROM ENTERING NEW STORM DRAIN SYSTEM DURING CONSTRUCTION.
 5. NO MECHANICAL TAMPERS SHALL BE USED DIRECTLY OVER PIPE TO INSURE PIPE IS NOT DAMAGED.
 6. TRENCH BACKFILL MATERIAL, INCLUDING ROADWAY LOCATIONS, SHALL BE NATURAL MATERIALS EXCAVATED FROM THE TRENCH DURING CONSTRUCTION AND FREE OF UNSUITABLE MATERIALS AS DEFINED BY NHDOT 203.2.7, WNV-WQ-704.09(i), AND THE EARTHWORK SPECIFICATIONS INCLUDED ON THESE PLANS.
 7. LEDGE, ROCK, BOULDERS AND LARGE STONES SHALL BE REMOVED TO PROVIDE A MINIMUM CLEARANCE OF SIX INCHES BELOW AND ON EACH SIDE OF ALL PIPES.
 8. BACKFILL MATERIALS SHALL BE COMPACTED, IN 12" LAYERS, TO 92% OF MODIFIED PROCTOR (ASTM 1557) TO WITHIN 3 FEET OF FINISHED GRADE. IN AREAS UNDER ROADWAYS, DRIVES, AND PARKING THE UPPER 3 FEET SHALL BE COMPACTED, IN 6" LAYERS, TO 95% MODIFIED PROCTOR (ASTM 1557) AND IN LAWN OR OTHER UNDEVELOPED SPACE THE UPPER 3 FEET SHALL BE COMPACTED TO 92% MODIFIED PROCTOR.

TYPICAL STORM DRAIN TRENCH DETAIL NOT TO SCALE 5



- GENERAL NOTES:**
1. PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

STORM DRAIN MANHOLE/CATCHBASIN CONNECTION NOT TO SCALE 6



- NOTES:**
1. PROVIDE SMOOTH SWEEPING TRANSITIONS BETWEEN INVERTS OF INTERSECTING PIPE.
 2. IF DEPTH OF MANHOLE IS 6 FT. OR LESS FROM RIM TO CENTERLINE INVERT, THEN A FLAT TOP WILL BE INSTALLED. IF DEPTH OF MANHOLE FROM RIM TO CENTERLINE INVERT IS MORE THAN 6 FT., THEN AN ECCENTRIC CONICAL TOP WILL BE INSTALLED.
 3. INVERTS AND SHELVES SHALL BE PLACED AFTER TESTING.
 4. MANHOLE AND COVER SHALL BE DESIGNED FOR H20 LOADING.

DRAINAGE MANHOLE DETAIL NOT TO SCALE 8

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Addison County Regional Planning Commission Madison Shropshire, Water Quality Planner 14 Summery Street, Middlebury, VT 05753 mshropshire@acrpc.org	Stormwater Details (1 of 2) School Street Site School Street and School 1 & 2 Subsurface Infiltration Chamber Project Town of Bristol, Addison County, Vermont
EV Project # 21230	Drawn By: HKW
Checked By: PB	Scale: not to scale
Date: 09/24/2021 - 60% CDS	
C3.1	

