



The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner



December 7, 2020

Mr. Kurt Blomquist
City of Keene
350 Marlboro Street
Keene, NH 03431
(sent via email to: kblomquist@ci.keene.nh.us)

Permit: AoT-1888

Re: Winchester Street Improvements

Dear Mr. Blomquist:

Based upon the plans and application, approved on December 7, 2020, we are hereby issuing RSA 485-A:17 Alteration of Terrain Permit AoT-1888. The permit is subject to the following conditions:

PROJECT SPECIFIC CONDITIONS:

1. The plans in the file, last revision date August 21, 2020, are a part of this approval. The project must be constructed as shown on the project plans.
2. **This permit expires on December 7, 2025.** No earth moving activities shall occur on the project after this expiration date unless the permit has been extended by the Department. If an extension is required, the request must be received by the department before the permit expires. The Amendment Request form is available at: <http://des.nh.gov/organization/divisions/water/aot/categories/forms.htm>
3. The Permittee shall comply with all recommendations by the New Hampshire Fish and Game Department related to state or federally listed threatened or endangered species that are incorporated into the project plans.

GENERAL CONDITIONS:

1. Activities shall not cause or contribute to any violations of the surface water quality standards established in Administrative Rule Env-Wq 1700.
2. You must submit revised plans for permit amendment prior to any changes in construction details or sequences. You must notify the Department in writing within ten days of a change in ownership.
3. You must notify the Department in writing prior to the start of construction and upon completion of construction. Forms can be submitted electronically. Paper forms are available at that same web page or at: <http://des.nh.gov/organization/divisions/water/aot/categories/forms.htm>.
4. All stormwater practices shall be inspected and maintained in accordance with Env-Wq 1507.07 and the project Inspection and Maintenance (I&M) Manual. All record keeping required by the I&M Manual shall be maintained by the identified responsible party, and be made available to the department upon request.
5. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits that may be required (e.g., from US EPA, US Army Corps of Engineers, etc.). Projects disturbing over 1 acre may

require a federal stormwater permit from EPA. Information regarding this permitting process can be obtained at: <http://des.nh.gov/organization/divisions/water/stormwater/construction.htm>.

6. In accordance with Env-Wq 1503.21 (c)(1), a written notice signed by the permit holder and a qualified engineer shall be submitted to DES stating that the project was completed in accordance with the approved plans and specifications. If deviations were made, the permit holder shall review the requirements in Env-Wq 1503.21(c)(2) and submit revised plans or an application to amend the permit as necessary.
7. No activity shall occur in wetland areas until a Wetlands Permit is obtained from the Department. Issuance of this permit does not obligate the Department to approve a Wetlands Permit for this project.
8. This project has been screened for potential impact to known occurrences of protected species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or have not been surveyed in detail, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species. This permit does not authorize in any way the take of threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.

Sincerely,



Bethann McCarthy, P.E.
Alteration of Terrain Bureau

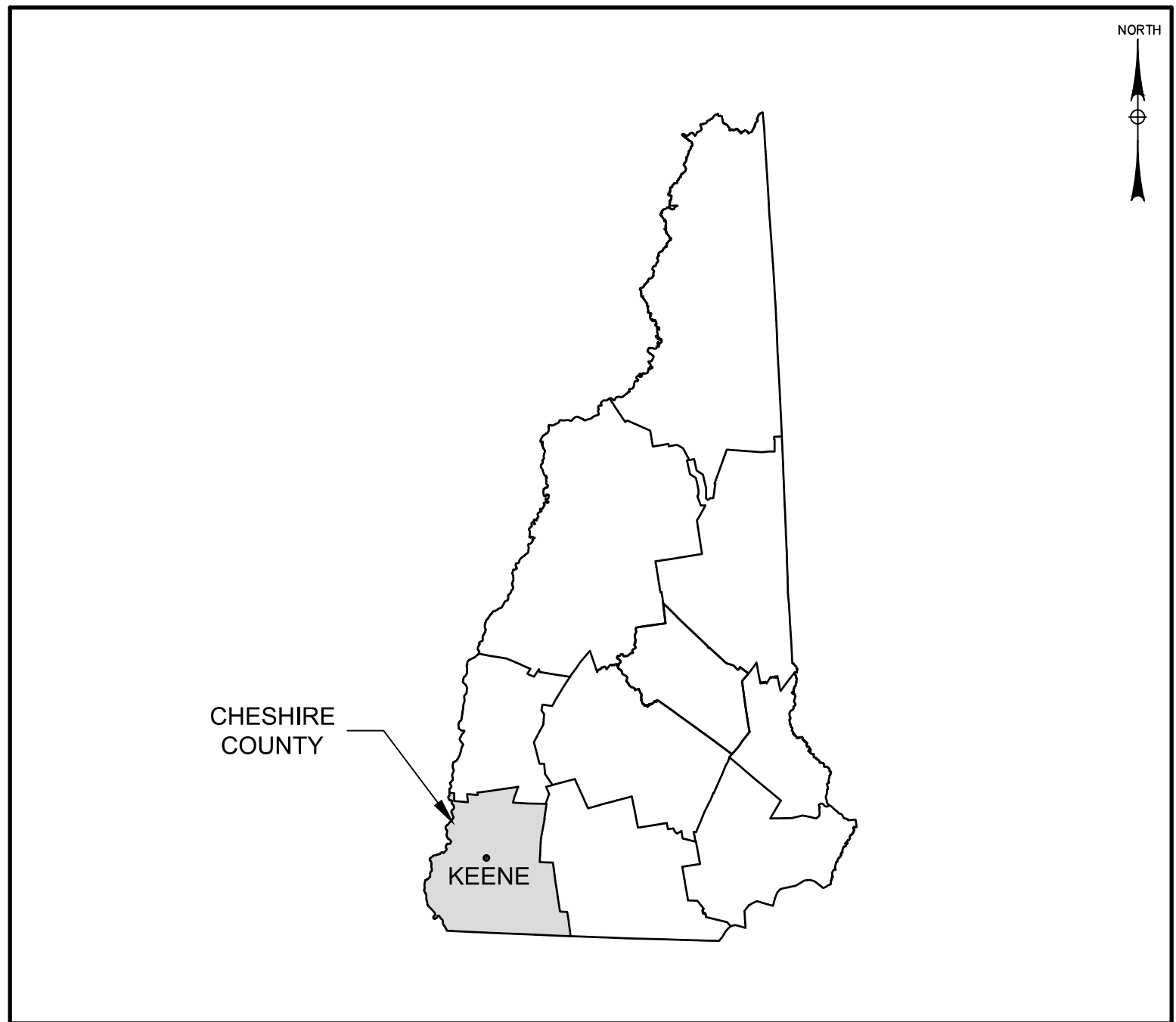
cc: Keene Planning Board (via email: Rhett Lamb)
Barbara Skuly, Ashuelot River Local Advisory Committee (via email: bskuly@ne.rr.com)
Gene McCarthy, McFarland Johnson (via email: gmccarthy@mjinc.com)

CITY OF KEENE WINCHESTER STREET RECONSTRUCTION

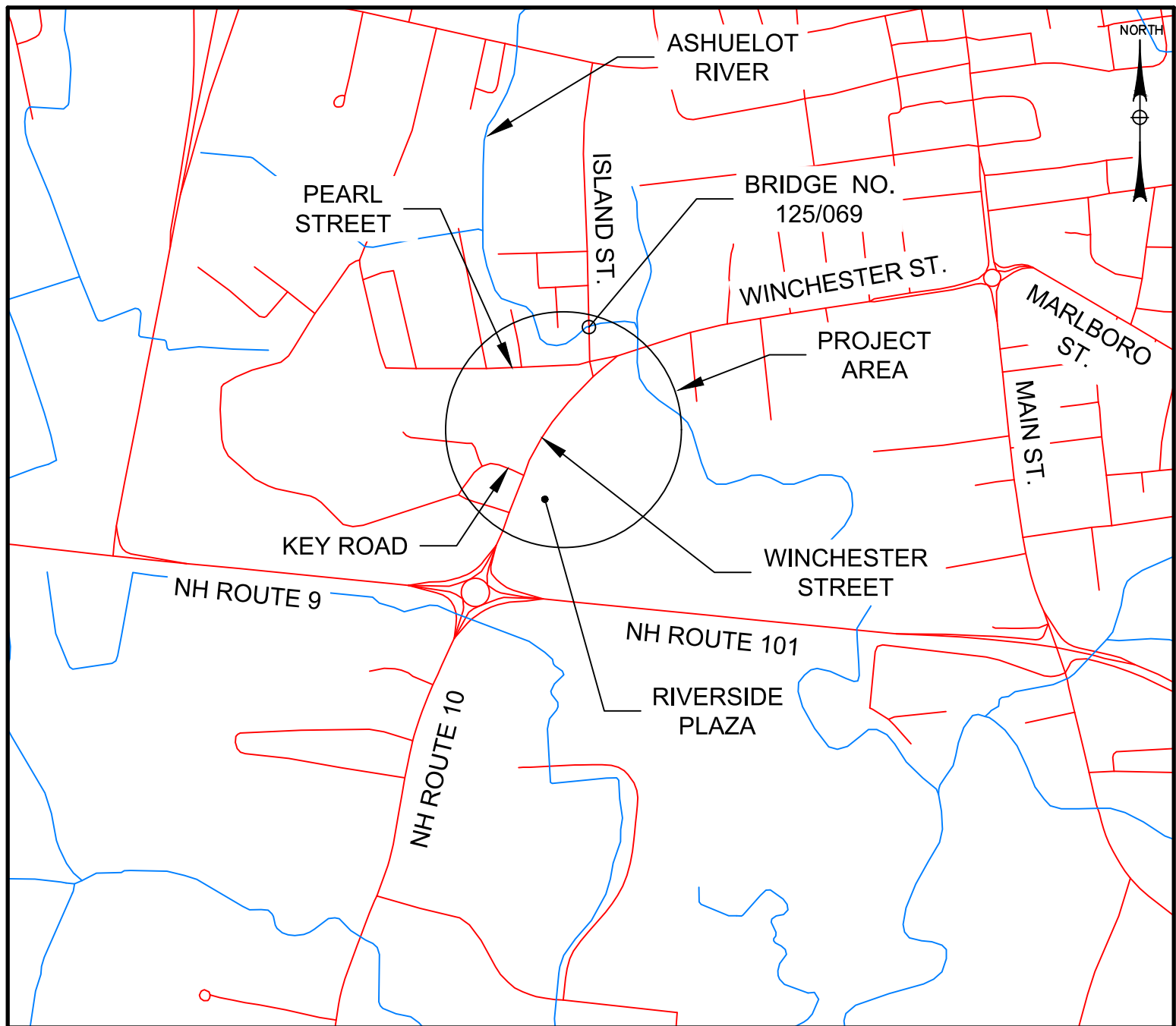
FINAL PLANS OCTOBER 2020

KEENE
CHESHIRE COUNTY
NEW HAMPSHIRE

DESIGN DATA	
WINCHESTER STREET	
AVERAGE DAILY TRAFFIC 2013	28,000
AVERAGE DAILY TRAFFIC 2033	34,000
PERCENT OF TRUCKS	2%
DESIGN SPEED	30 MPH
LENGTH OF PROJECT	0.33 MILES



NEW HAMPSHIRE
LOCATION MAP



KEENE, NH
VICINITY MAP

2

**NEW HAMPSHIRE DEPARTMENT OF FISH & GAME
THREATENED AND ENDANGERED WILDLIFE NOTES (PER DES
AOT 503.19(H))**

1. THE USE OF WELDED PLASTIC OR "BIODEGRADABLE PLASTIC" NETTING OR THREAD IN EROSION CONTROL MATTING, SHALL BE AVOIDED. EROSION CONTROL BERMS AND EROSION CONTROL MATERIALS SHALL CONSIST OF "WILDLIFE FRIENDLY" OPTIONS SUCH AS WHITE FILTREXX DEGRADABLE WOVEN SILT SOCK OR WOVEN ORGANIC MATERIALS (E.G. COCO OR JUTE MATTING SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUIVALENT) (SEE SHEET DT-09).
2. IF WOOD TURTLES ARE FOUND LAYING EGGS OR SUSPECTED TO BE NESTING WITHIN THE ACTIVE CONSTRUCTION AREA, NEW HAMPSHIRE DEPARTMENT OF FISH & GAME SHALL BE CONTACTED: TEXT OR CALL MELISSA DOPERALSKI AT 603-479-1129 OR JOSH MEGYSEY AT 978-578-0802 FOR FURTHER INSTRUCTIONS. PLEASE ATTEMPT PHOTOS FOR DOCUMENTATION. SEE SHEET IN-01 FOR IDENTIFICATION INFORMATION.
3. IF COMMON NIGHTHAWKS ARE OBSERVED OR SUSPECTED TO BE NESTING WITHIN THE PROJECT AREA OR PROJECT LAYDOWN AREAS, PLEASE CONTACT NEW HAMPSHIRE DEPARTMENT OF FISH & GAME IMMEDIATELY: TEXT OR CALL MELISSA DOPERALSKI AT 603-479-1129 OR THE WILDLIFE ADMINISTRATOR AT 603-271-6461.
4. ALL OTHER OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED TO NEW HAMPSHIRE DEPARTMENT OF FISH & GAME VIA EMAIL TO RAARP@WILDLIFE.NH.GOV AND TO MELISSA.DOPERALSKI@WILDLIFE.NH.GOV. SUBJECT LINE: T&E OBSERVATION WINCHESTER STREET IMPROVEMENTS NHB20-0555.
5. NEW HAMPSHIRE DEPARTMENT OF FISH & GAME SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

PREPARED FOR:



CITY OF KEENE
350 MARLBORO STREET
KEENE, NEW HAMPSHIRE
(603)352-6550
[HTTPS://CI.KEENE.NH.US](https://ci.keene.nh.us)

PREPARED BY:



McFarland Johnson

53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

KEENE CONTRACT NUMBER: 01-21-03
NHDOT PROJECT NUMBER: 10309B
MCFARLAND JOHNSON PROJECT NUMBER: 18022.01

REV	DATE	DESCRIPTION	BY
2	11/30/20	NHFG REVISIONS	BEP
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

INDEX OF SHEETS

SHEET	SHEET TITLE	NUMBER
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XS-24 TO XS-28	KEY ROAD CROSS SECTIONS STA 200+00.00 TO STA 203+30.00	97-101
XS-29 TO XS-32	RIVERSIDE PLAZA CROSS SECTIONS STA 300+00.00 TO STA 302+85.00	102-105
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BR-01 TO BR-27	BRIDGE SHEETS	116-142

2

Wood Turtle

(Glyptemys insculpta)

(New Hampshire Species of Special Concern)



- Neck and forelimbs are orange.
- Characterized by its highly sculpted shell with each large scute taking on an irregular pyramidal shape.
- Adults can be 5-8 inches long.



Please report sightings to NH Fish and Game at RAARP@wildlife.nh.gov or at 603-271-2461. Photo documentation, location, and date/time of observation is helpful.

NOTE: It is illegal to remove a wood turtle from the wild (RSA 207:1, FIS 804.02).

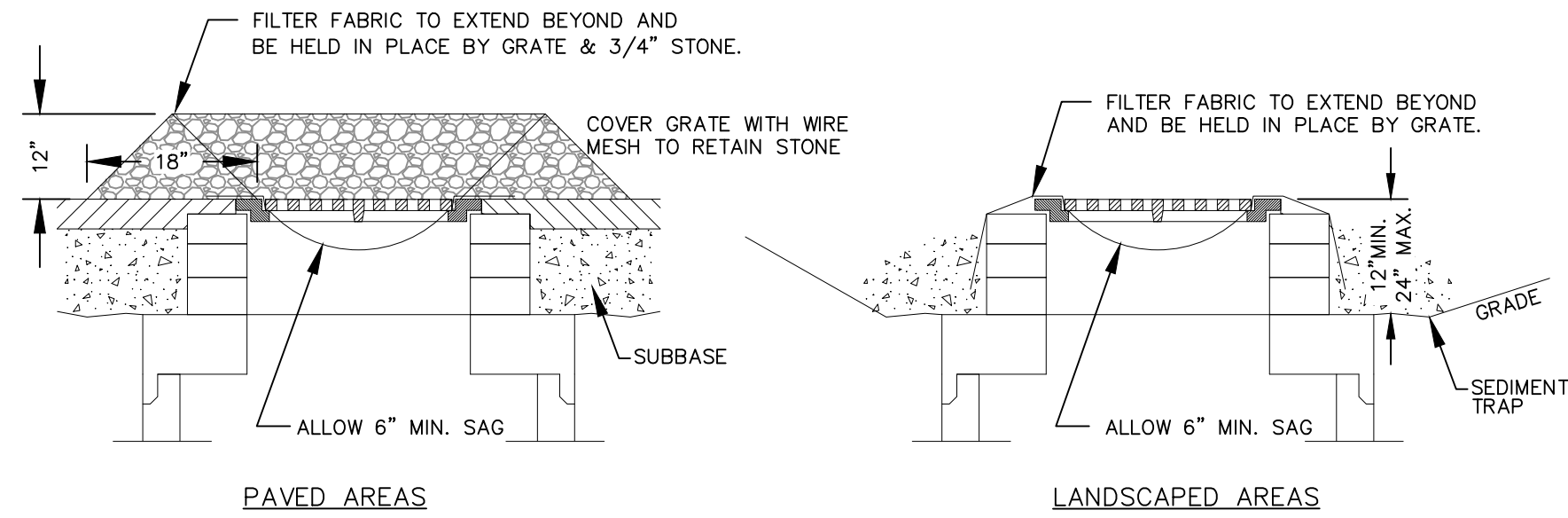
GENERAL CONSTRUCTION NOTES:

- ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE REQUIREMENTS IN THE LATEST EDITION OF THE FOLLOWING STANDARDS AND REGULATIONS (IF CONFLICTING REQUIREMENTS ARE FOUND, THEN THE MORE STRINGENT GOVERNS):
 - CITY OF KEENE STANDARDS AND DETAILS
 - NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (DATED 2016)
 - NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES) ADMINISTRATIVE RULES AND STANDARDS
 - USDOT-FHWA's "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD, LATEST EDITION)
 - ALL APPLICABLE INTERNATIONAL AND NATIONAL CODES.
- THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE CONSTRUCTION PERMITS, PRIOR TO CONSTRUCTION, FROM NHDES, USEPA, UTILITY COMPANIES, AND OTHER REGULATORY AGENCIES. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES PRIOR THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES IN SUCH A MANNER AS TO CAUSE A MINIMUM OF INCONVENIENCE TO THE PUBLIC, AND MINIMIZE INTERFERENCE WITH NORMAL OPERATIONS OF THE ADJACENT PROPERTIES.
- THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH LOCAL AUTHORITIES, OTHER CONTRACTORS AND AGENCIES WORKING WITHIN THE PROJECT LIMITS IN ORDER TO MINIMIZE DISRUPTIONS.
- THE CONTRACTOR SHALL INSPECT THE SITE PRIOR TO CONSTRUCTION TO BE AWARE OF ALL FIELD CONDITIONS AND SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES WITH THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL CONTACT "DIG SAFE" (1-888-DIG-SAFE or 1-888-344-7233) AT LEAST 3 WORKING DAYS (72 HOURS) PRIOR TO ANY CONSTRUCTION ACTIVITY FOR UTILITY MARKOUTS.
- THE INFORMATION SHOWN ON THE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. DAMAGE TO EXISTING UTILITIES CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR WITH ALL ADDITIONAL COSTS BORNE BY THE CONTRACTOR, AND TO THE SATISFACTION OF THE ENGINEER.
- THE SUBSURFACE INFORMATION, AS PROVIDED, WAS OBTAINED FOR DESIGN PURPOSES AND MAY NOT BE A COMPLETE REPRESENTATION OF ACTUAL CONDITIONS FOR THE PROJECT CONSTRUCTION. RISKS RESULTING FROM USE OR INTERPRETATION OF THE INFORMATION RELEVANT TO UNDERGROUND UTILITIES AND SOIL ELEVATIONS SHALL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL PERFORM ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY, UNLESS OTHERWISE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER.
- REMOVAL OF EXISTING CONCRETE PAVEMENT SHALL BE PAID UNDER ITEM 203.2 – ROCK EXCAVATION.
- THE CONTRACTOR SHALL PROTECT ALL TRENCHES OR EXCAVATIONS AGAINST CAVING IN BY SUITABLE SHORING, CAGES/BOXES, OR PROPER SLOPING AS DESCRIBED IN ALL APPLICABLE OSHA STANDARDS. ALL SHORING DEEMED TO BE NECESSARY SHALL BE DESIGNED AND SEALED BY A REGISTERED ENGINEER AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
- THE CONTRACTOR SHALL PROVIDE FLAGGERS, WARNING SIGNS, AND BARRICADES IN COMPLIANCE WITH THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) ISSUED BY THE UNITED STATES DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, ISSUE OF 2009 EDITION WITH REVISIONS OR ANY LATER REVISED EDITION, AND WILL FOLLOW ALL OF THE REQUIREMENTS OF NHDOT SPECIFICATION 619 – MAINTENANCE OF TRAFFIC.
- ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS" AND THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) LATEST EDITION WITH REVISIONS.
- THE CONTRACTOR SHALL MAINTAIN TRAFFIC AND PROTECT THE PUBLIC FROM DAMAGE TO PERSONS AND PROPERTY WITHIN THE CONSTRUCTION LIMITS FOR THE DURATION OF THE CONTRACT.
- BEFORE ANY REMOVALS, THE CONTRACTOR SHALL ENSURE ALL EXISTING ADJACENT COMPONENTS ARE ADEQUATELY SHORED. IF ANY UNFORESEEN CONDITIONS ARE ENCOUNTERED WHICH REQUIRE DEVIATION FROM THE CONTRACT DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR TO ORIGINAL CONDITION, ANY AND ALL DAMAGE TO BUILDINGS, PAVEMENT AREAS, EQUIPMENT AND FURNISHINGS CAUSED DURING PERFORMANCE OF WORK COVERED BY THIS CONTRACT. PROPERTY IRONS, SIGNS, MAIL BOXES, OR FENCES REMOVED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.
- ALL EXCAVATED SOIL DEEMED UNSUITABLE FOR RE-USE ON SITE SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL LEGALLY DISPOSE OF MATERIAL OFF SITE. EXCAVATED MATERIALS SHALL BE GRADED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
- ALL WASTE MATERIALS, DEBRIS, AND RUBBISH SHALL BE HAULED AND DISPOSED OF BY THE CONTRACTOR AT AN OFF-SITE LOCATION. PRIOR TO DISPOSAL ON ANY OFF-SITE AREAS, A LETTER ALLOWING SUCH DISPOSAL SHALL BE OBTAINED FROM THE PROPERTY OWNER AND THE LOCATION SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FOR DISPOSAL AREAS.

- THE CONTRACTOR SHALL KEEP ALL SURFACES UTILIZED BY VEHICLES CONTINUOUSLY FREE OF DEBRIS. WHERE REQUIRED, SURFACES SHALL BE WATERED TO PREVENT THE BLOWING OF DUST. STREETS SHALL BE SWEEP WEEKLY OR AS REQUIRED BY THE CITY OR ENGINEER. COSTS SHALL BE INCLUDED IN ITEM 619.1 – MAINTENANCE OF TRAFFIC.
- THE CONTRACTOR SHALL KEEP THE PROJECT AREA CLEAN AND FREE OF DUST AND DEBRIS RESULTING FROM HIS OWN OPERATIONS. DAILY CLEANUP THROUGHOUT THE JOB SITE SHALL BE NECESSARY AS THE CONTRACTOR PROGRESSES WITH HIS WORK, BUT EXTRA PRECAUTIONS IN CLEANUP SHALL BE MADE PRIOR TO WEEKENDS AND HOLIDAYS OR STOPPAGE OF WORK.
- AT COMPLETION OF WORK, THE CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS, TOOLS, EQUIPMENT, MACHINERY, AND SURPLUS MATERIALS AND CLEAN ALL EXPOSED SURFACES. PROPERTY AND ALL RIGHT-OF-WAYS SHALL BE LEFT IN A CONDITION EQUAL TO THAT AT THE BEGINNING OF WORK OR AS SPECIFIED IN THE PLANS.
- PRIOR TO BEGINNING ANY WORK ON A UTILITY LINE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND RENDERING THE REQUIRED NOTICE (i.e. AT LEAST 72 HOURS) TO ALL PUBLIC/PRIVATE UTILITIES (i.e. WATER, SEWER, ELECTRIC, DATA/TELEPHONE, ETC.), AND TO ALL OTHER LOCAL, STATE OR FEDERAL AGENCIES, AS WELL AS TO THE OWNER OF MUNICIPAL AND PRIVATE UTILITIES. NO WORK SHALL COMMENCE UNTIL THE PUBLIC/PRIVATE UTILITIES PROVIDE PROPER AUTHORIZATION.
- ACTIVE WATER VALVES AND HYDRANTS WILL BE OPENED/CLOSED BY ONLY MUNICIPAL UTILITY PERSONNEL, UNLESS AUTHORIZED BY THE MUNICIPAL UTILITY IN WRITING. THE CONTRACTOR SHALL CONTACT THE CITY OF KEENE WATER AND SEWER DIVISION WITH THE REQUIRED MINIMUM NOTICE (I.E. AT LEAST 48 HOURS) PRIOR TO NEEDING A WATER VALVE OPENING/CLOSURE.
- THE ENGINEER SHALL BE NOTIFIED PRIOR TO CONSTRUCTION IF THERE ARE ANY DISCREPANCIES IN PLANS OR EXISTING DATA. AFTER SUCH NOTIFICATION, WORK SHALL NOT PROCEED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE ALL UTILITY CONSTRUCTION WITH OTHER UTILITY COMPANIES AS REQUIRED TO ALLOW FOR A COMPLETE INSTALLATION.
- REMOVE TOPSOIL FOR ITS TOTAL DEPTH WITHIN THE LIMITS OF THE SLOPE LINES. UNLESS OTHERWISE DIRECTED, STOCKPILE TOPSOIL AND USE IT ON THE PROJECT AS NEEDED UNDER SECTION 641 – LOAM.
- NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION. ANY BOUNDS THAT ARE REQUIRED TO BE RESET SHALL BE SUBSIDIARY TO THE WORK.
- EXISTING CONDITIONS SURVEY PERFORMED IN AUGUST 2018 BY GM2 ASSOCIATES. HORIZONTAL DATUM: NAD83(2011) VERTICAL DATUM: NAVD88.
- EXISTING GRANITE CURB REMOVED AND NOT RESET SHALL BE SALVAGED TO THE CITY. DELIVERY OF THE SALVAGED CURB TO CITY IS SUBSIDIARY TO THE PROJECT.
- ANY CLEARING OF BRUSH SHALL BE CONSIDERED SUBSIDIARY TO THE WORK.
- CORING INTO EXISTING DRAINAGE STRUCTURES SHALL BE SUBSIDIARY TO THE DRAINAGE PIPE.
- REMOVAL OF EXISTING DRAINAGE PIPE AND STRUCTURES SHALL BE SUBSIDIARY TO THE INSTALLATION OF THE NEW DRAINAGE PIPE AND STRUCTURES.
- COMMON STRUCTURE EXCAVATION FOR PROPOSED DRAINAGE PIPE AND STRUCTURES SHALL BE SUBSIDIARY TO THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE UTILITY COMPANIES TO HOLD ANY UTILITY POLES DURING CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF THE PROPOSED WORK. THE OWNER WILL SUPPLY THE LOCATIONS OF CONTROL POINTS USED FOR THE EXISTING CONDITIONS SURVEY.
- THE CONTRACTOR WILL NOT BE PERMITTED TO WORK ON WEDNESDAY, AUGUST 26 OR SUNDAY, AUGUST 30 WHICH ARE PLANNED MOVE-IN DAYS FOR KEENE STATE COLLEGE.
- UNLESS SPECIFICALLY APPROVED IN ADVANCE BY THE CITY OF KEENE, THE CONTRACTOR WILL NOT BE PERMITTED TO WORK ON SATURDAYS OR SUNDAYS.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PRIVATE PROPERTIES AT ALL TIMES. IF A PROPERTY OWNER HAS A SINGLE DRIVEWAY, CONSTRUCTION MUST PROCEED IN HALF WIDTHS TO ALLOW CONTINUOUS ACCESS UNLESS OTHERWISE APPROVED BY THE ENGINEER AND PROPERTY OWNER.
- THE CONTRACTOR MUST SUBMIT AN EXCAVATION PERMIT FOR ALL WORK WITHIN THE CITY RIGHT-OF-WAY. THIS PERMIT CAN BE SUBMITTED WITH NO FEE. APPROVAL OF THE EXCAVATION PERMIT INVOLVES APPROVAL OF THE TRAFFIC CONTROL PLAN AND COMPLETION OF THE DIG SAFE PROCESS. SEE https://ci.keene.nh.us/sites/default/files/2017-04/PERMIT%20-%20Excavation_0.pdf FOR THE PERMIT FORM.

SYMBOL	EXISTING
BUILDING	
CONTOUR (MAJOR)	
CONTOUR (MINOR)	
CURB	
FENCE	
GAS UTILITY	
OVERHEAD UTILITIES	
PAVEMENT MARKING / STRIPING	
RAILROAD	
RIGHT-OF-WAY	
ROADWAY CENTER LINE	
SEWER UTILITY	
STORM DRAIN	
TREE LINE	
UNDERGROUND TELEPHONE	
WALL	
POND, STREAM, WETLAND	
WATER UTILITY	
BORING	
BOUND	
CAP	
CATCH BASIN/DROP INLET	
DRILL HOLE	
GAS VALVE	
GUY WIRE	
HYDRANT	
IRON PIN	
LAMP HOLE	
STREET LIGHT	
PLUG	
REDUCER	
SANITARY SEWER MANHOLE	
SOLID SLEEVE	
STORM DRAIN MANHOLE	
TEE	
TELECOM UTILITY MANHOLE	
TEST PIT	
TRAFFIC SIGN	
UTILITY POLE	
WATER MAIN VALVES	
(BALL, GATE, WHEEL, OTHER)	
WELL	
DECIDUOUS TREE	
CONIFEROUS TREE	
SHRUB	
STUMP	
CROSSWALK	

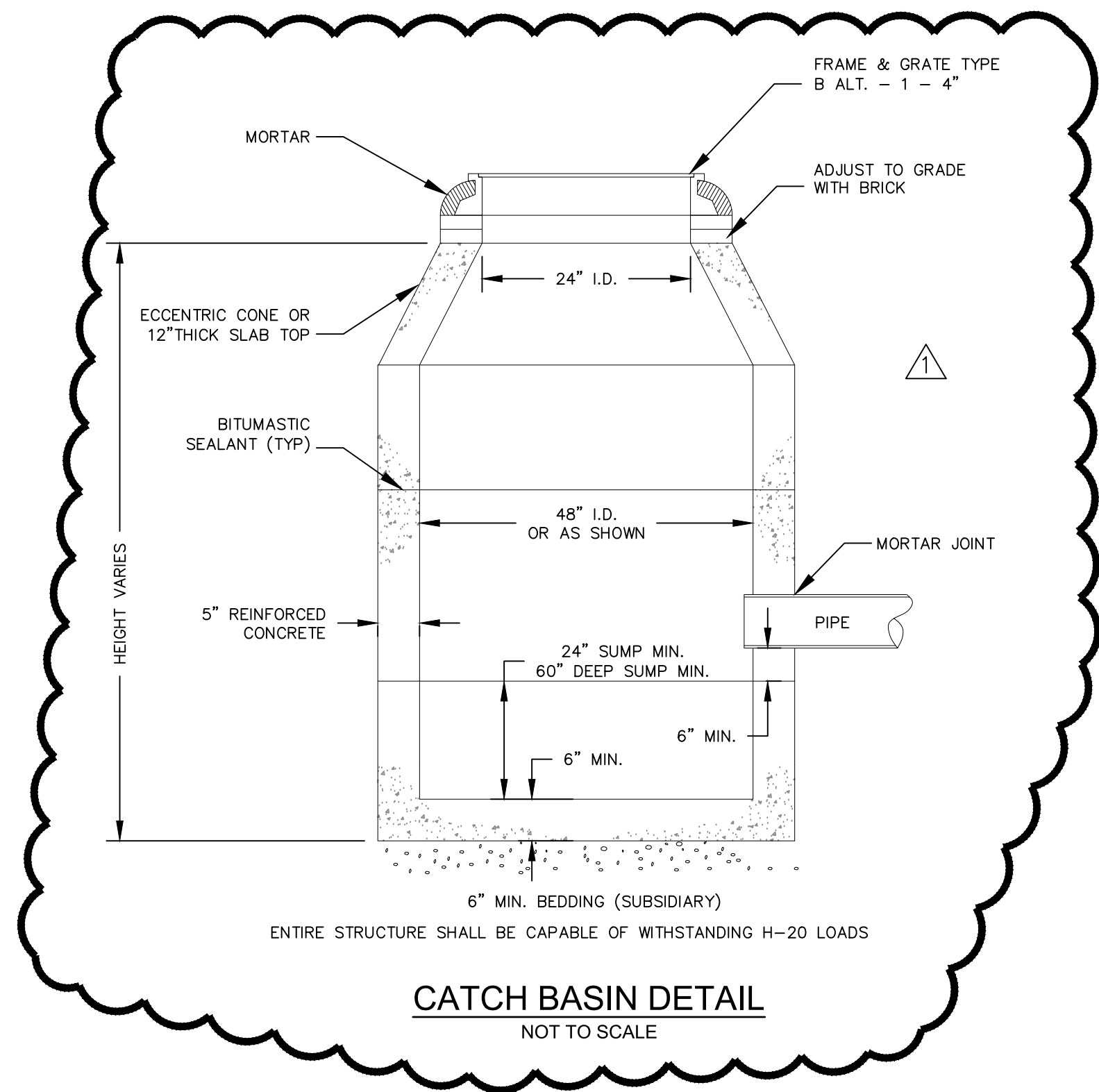
				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION			
2	11/30/20	NHFG REVISIONS	BEP				
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP				
REV	DATE	DESCRIPTION	BY				
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				INDEX OF SHEETS, STANDARD SYMBOLS, AND GENERAL NOTES			
				SCALE:		DESIGN: BEP	IN-01 2 OF 142
				DRAWN: MJF		PROJECT:18022.01	
				CHECKED: EWM		DATE: OCTOBER 2020	



NOTE:
INLET PROTECTION IS TEMPORARY, TO BE MAINTAINED AS NEEDED DURING
CONSTRUCTION AND REMOVED FOLLOWING STABILIZATION OF THE SITE.

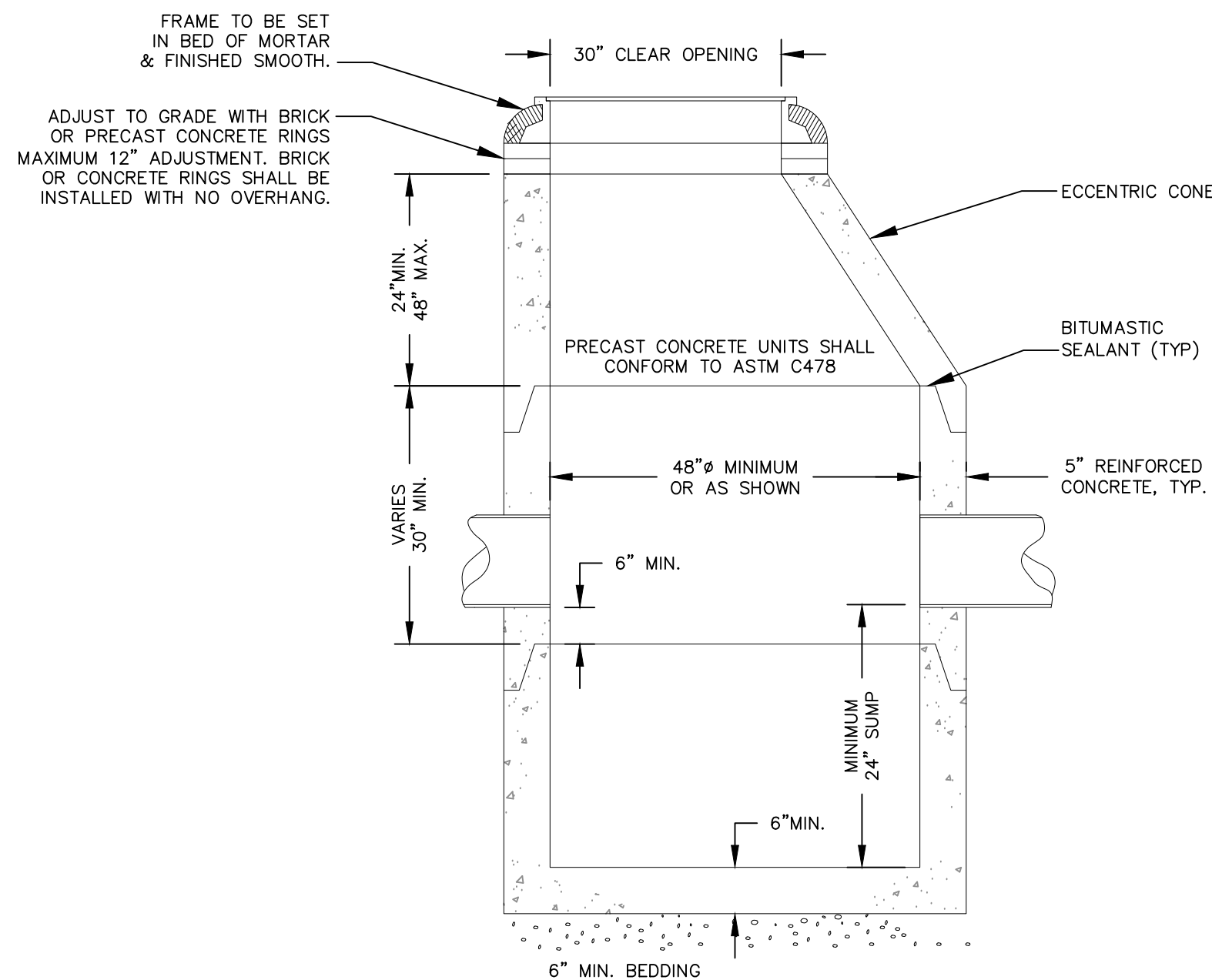
CATCH BASIN PROTECTION DETAIL

NOT TO SCALE



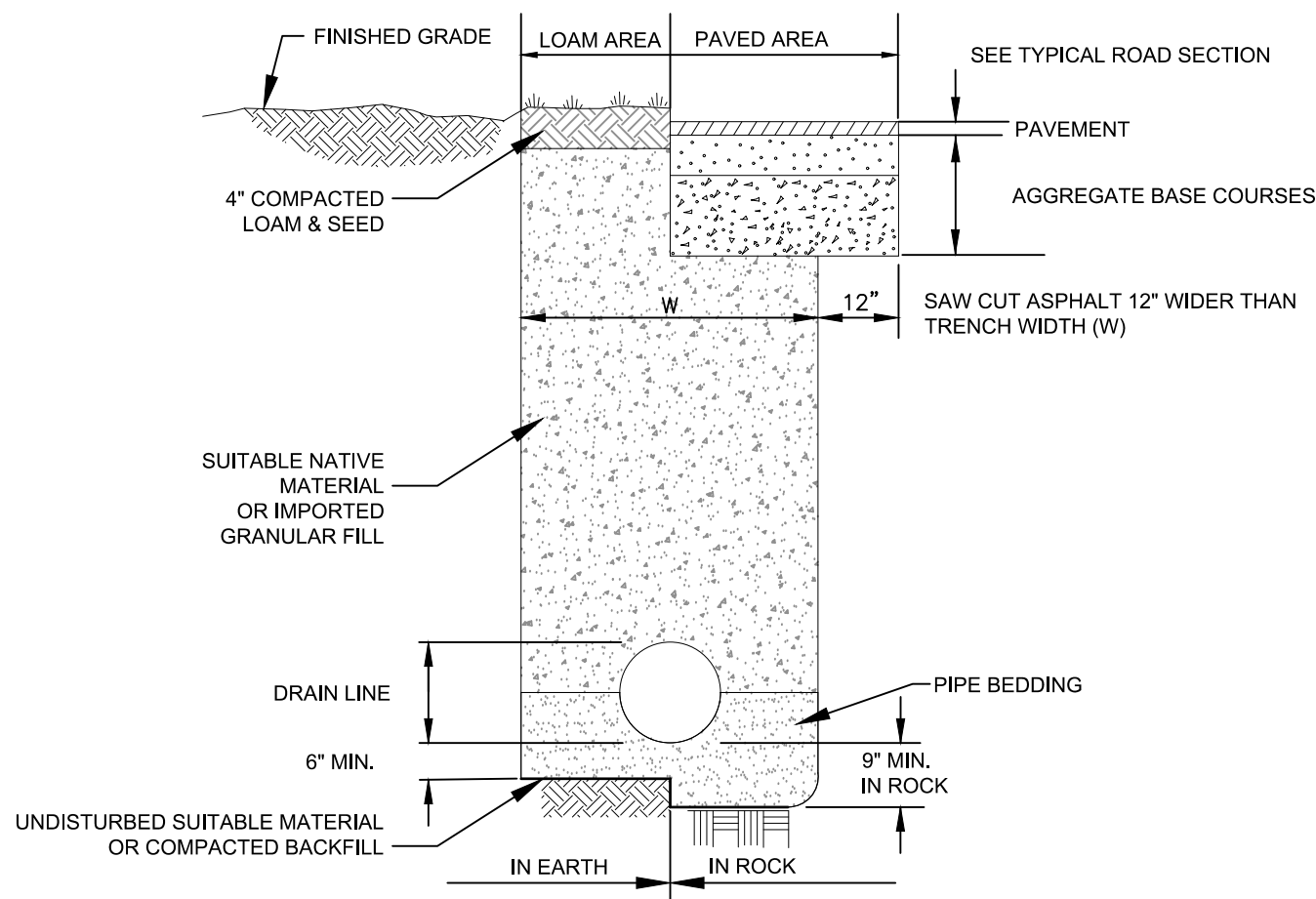
CATCH BASIN DETAIL

NOT TO SCALE



DRAIN MANHOLE DETAIL

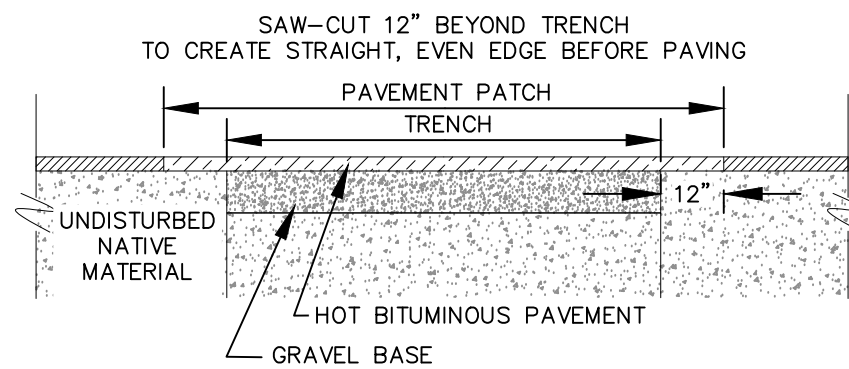
NOT TO SCALE



1. FOR PIPES LESS THAN OR EQUAL TO 15 INCHES IN DIAMETER, W SHALL BE 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER.
2. COMMON STRUCTURE EXCAVATION FOR UTILITY TRENCH SHALL BE SUBSIDIARY TO THE WORK.

DRAINAGE TRENCH DETAIL

NOT TO SCALE



GRAVEL BASE
8" CRUSHED GRAVEL (NHDOT ITEM 304.3)
(SIDEWALKS 12" NHDOT 304.3)
14" BANK RUN GRAVEL (NHDOT ITEM 304.2)

HOT BITUMINOUS PAVEMENT
1-1/2" TOP (1/2" NHDOT 403.12 E)
2-1/2" BASE (3/4" NHDOT 403.12 B)

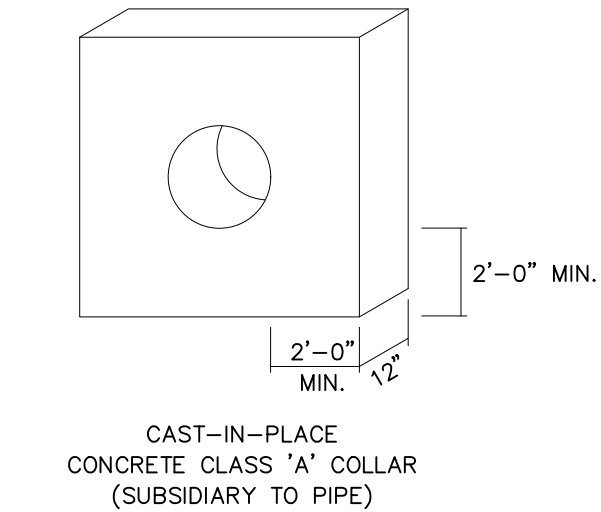
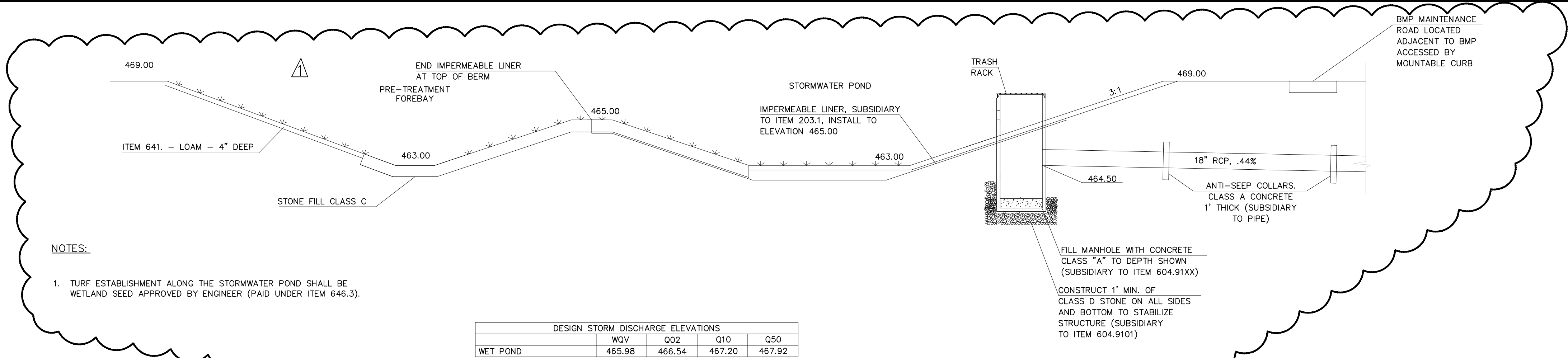
TRENCH PATCH DETAIL

NOT TO SCALE

NOTES:

1. CATCH BASINS AND DRAINAGE MANHOLES THAT CALL FOR A DEEP SUMP SHALL HAVE A 5-FOOT DEEP SUMP.

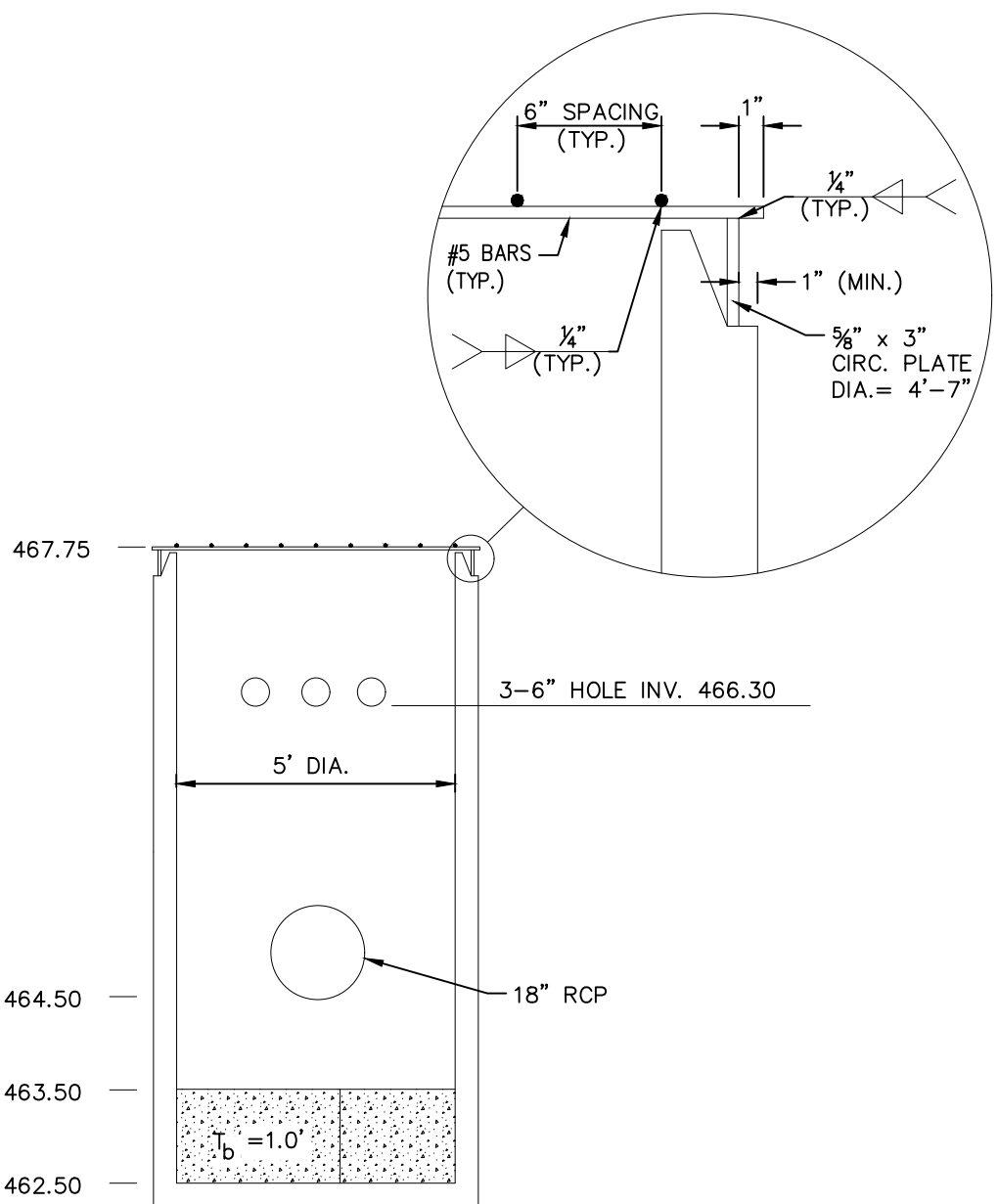
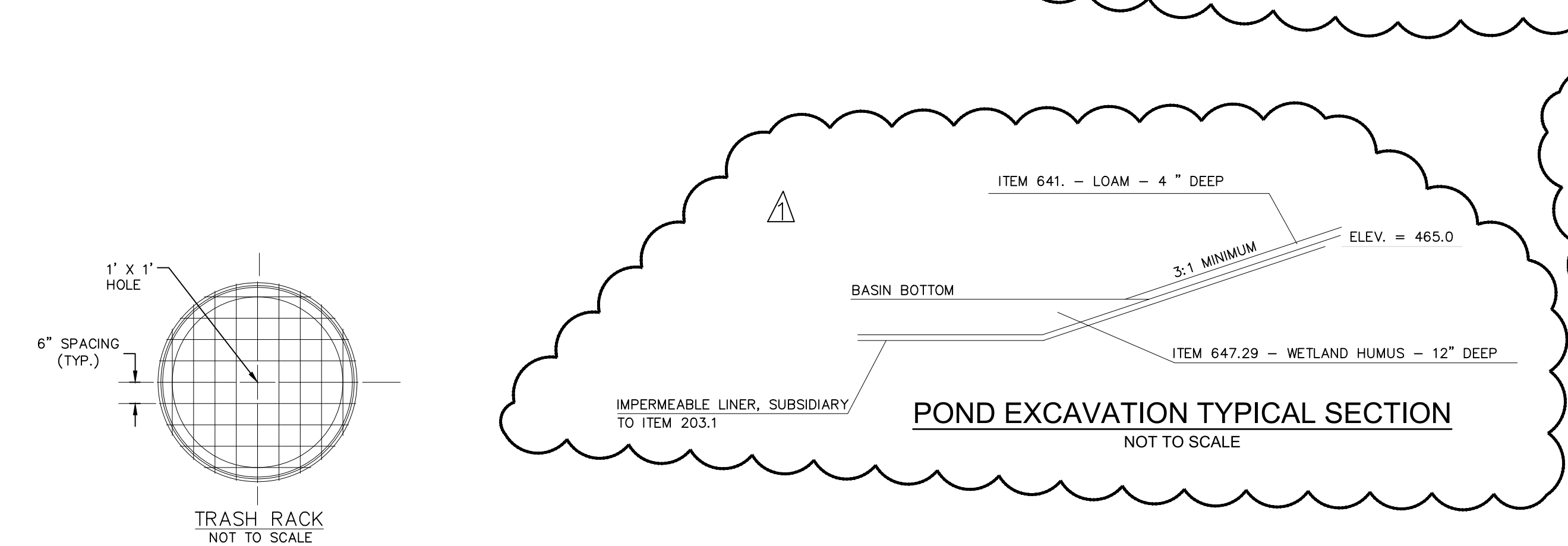
				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION		
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP	DETAILS (SHEET 5 OF 20) DRAINAGE DETAILS		
REV	DATE	DESCRIPTION	BY			
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				SCALE: AS SHOWN	DESIGN: BEP	DT-05 12 OF 142
				DRAWN: MJF	PROJECT: 18022.01	
				CHECKED: EWM	DATE: SEPTEMBER 2020	



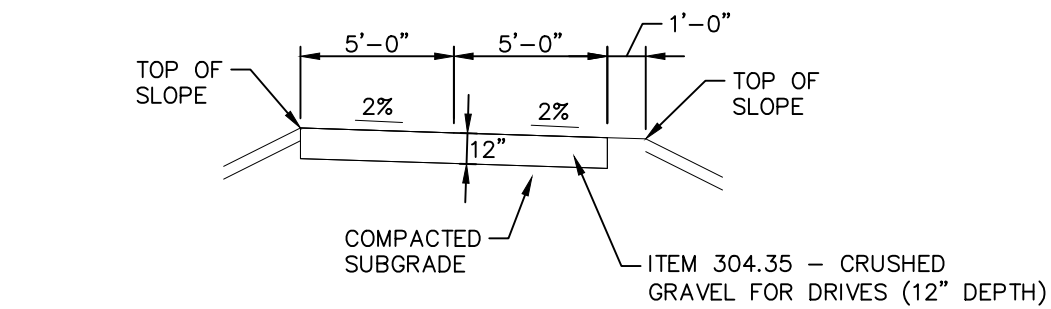
ANTI-SEEP COLLAR
NOT TO SCALE

DESIGN STORM DISCHARGE ELEVATIONS				
	WQV	Q02	Q10	Q50
WET POND	465.98	466.54	467.20	467.92

STORMWATER POND TYPICAL SECTION
NOT TO SCALE



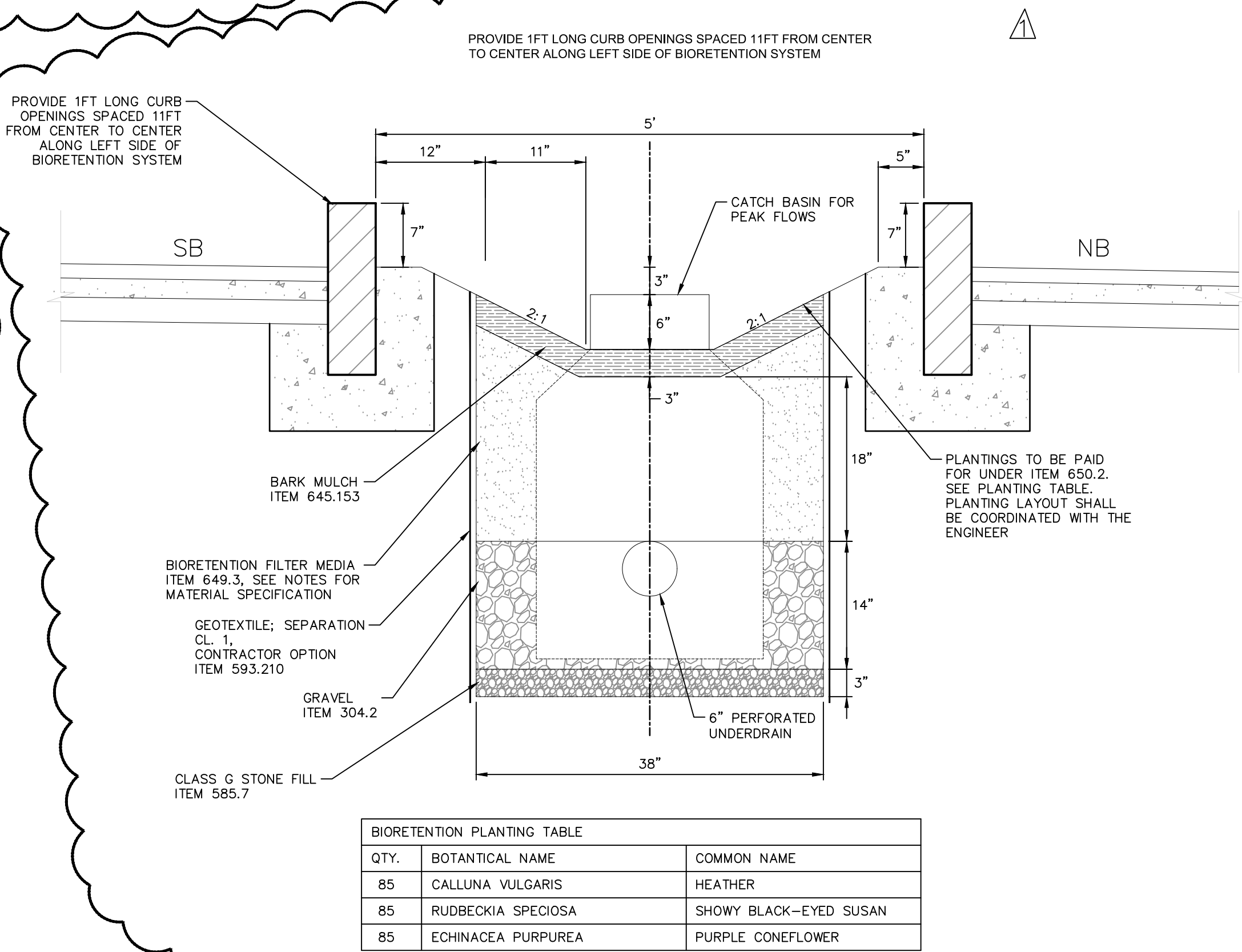
OUTLET CONTROL STRUCTURE
NOT TO SCALE



BMP MAINTENANCE ROAD TYPICAL SECTION
NOT TO SCALE

GENERAL NOTES:

- AUDIT USE OF HEAVY MACHINERY IN BASIN BOTTOM TO MINIMIZE COMPACTION OF SUBSOILS. IN CASE OF OVERCOMPACTION, RAKE OR ROTOTILL SUBGRADE TO A DEPTH OF 4" AND SMOOTH PRIOR TO SPREADING HUMUS.



BIORETENTION PLANTING TABLE		
QTY.	BOTANICAL NAME	COMMON NAME
85	CALLUNA VULGARIS	HEATHER
85	RUDBECKIA SPECIOSA	SHOWY BLACK-EYED SUSAN
85	ECHINACEA PURPUREA	PURPLE CONEFLOWER

MEDIAN BIORETENTION SYSTEM
NOT TO SCALE

NOTES:

- THE FILTER MEDIA SHALL CONSIST OF ONE OF THE FOLLOWING MIXTURES VOLUME:
 - 2.1.A. 50% TO 55% BY VOLUME SAND THAT IS CERTIFIED BY ITS PRODUCER AS MEETING THE REQUIREMENTS FOR ASTM C-33 CONCRETE SAND, 20% TO 30% BY VOLUME OF LOAMY SAND TOPSOIL WITH 15% TO 25% FINES PASSING THE NUMBER 200 SIEVE, AND 20% TO 30% BY VOLUME MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE NUMBER 200 SIEVE;
 - 2.1.B. 20% TO 30% BY VOLUME OF MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH THAT HAS NO MORE THAN 5% FINES PASSING THE NUMBER 200 SIEVE, WITH 70 TO 80% BY VOLUME LOAMY COARSE SAND USED IN THE MIXTURE MEETING THE FOLLOWING SIEVE ANALYSIS SPECIFICATION:
 - FROM 85 TO 100 PERCENT BY WEIGHT SHALL PASS THE NUMBER 10 SIEVE;
 - FROM 70 TO 100 PERCENT BY WEIGHT SHALL PASS THE NUMBER 20 SIEVE;
 - FROM 15 TO 40 PERCENT BY WEIGHT SHALL PASS THE NUMBER 60 SIEVE; AND
 - FROM 8 TO 15 PERCENT BY WEIGHT SHALL PASS THE NUMBER 200 SIEVE;
- FRAGMENT SIZE DISTRIBUTION:
 - 2.2.A. STICKS AND ROOTS: SHOULD BE MINIMIZED AND PREFERABLY LIMITED TO NOTHING LARGER THAN 4.76 MM
 - 2.2.B. DEBRIS AND OTHER FOREIGN MATERIALS: SHOULD BE MINIMIZED
- SOIL REACTION: PH OF 6 TO 7.
- CEC OF TOTAL SOIL: MINIMUM 10 MEQ/100 ML AT PH OF 7.0.
- BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS INDICATED ON DRAWINGS
- BASIC PROPERTIES: MANUFACTURED SOIL SHALL NOT CONTAIN THE FOLLOWING:
 - 2.6.A. UNACCEPTABLE MATERIALS: CONCRETE SLURRY, CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, BUILDING DEBRIS, ASPHALT, BRICKS, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, ACID, SOLID WASTE, AND OTHER EXTRANEIOUS MATERIALS THAT ARE HARMFUL TO PLANT GROWTH.
 - 2.6.B. UNSUITABLE MATERIALS: STONES, ROOTS, PLANTS, SOD, CLAY LUMPS, AND POCKETS OF COARSE SAND THAT EXCEED A COMBINED MAXIMUM OF 5 PERCENT BY DRY WEIGHT OF THE MANUFACTURED SOIL.
 - 2.6.C. LARGE MATERIALS: STONES, CLODS, ROOTS, CLAY LUMPS, AND POCKETS OF COARSE SAND EXCEEDING 0.187 INCHES (4.76 MM) IN ANY DIMENSION.
- ACCEPTABLE ORGANIC SOIL AMENDMENTS
 - 2.7.A. NO COMPOST SHOULD BE USED IN THE PLANTING MIX UNLESS SPECIFIED BY THE ENGINEER.
 - 2.7.B. SPHAGNUM PEAT: PARTIALLY DECOMPOSED SPHAGNUM PEAT MOSS, FINELY DIVIDED OR OF GRANULAR TEXTURE WITH 100 PERCENT PASSING THROUGH A 1/2-INCH (13-MM) SIEVE, A PH OF 3.4 TO 4.8.
 - 2.7.C. WOOD DERIVATIVES: SHREDDED WOOD, WOOD CHIPS, GROUND BARK, OR WOOD WASTE; OF UNIFORM TEXTURE AND FREE OF STONES, STICKS, SOIL, OR TOXIC MATERIALS.
 - 2.7.D. MEDIA AMENDMENTS SUCH AS ZERO-VALENT IRON AND/OR DRINKING WATER TREATMENT RESIDUALS (ALUM) TO ENHANCE PHOSPHORUS SORPTION AS SPECIFIED BY THE ENGINEER.

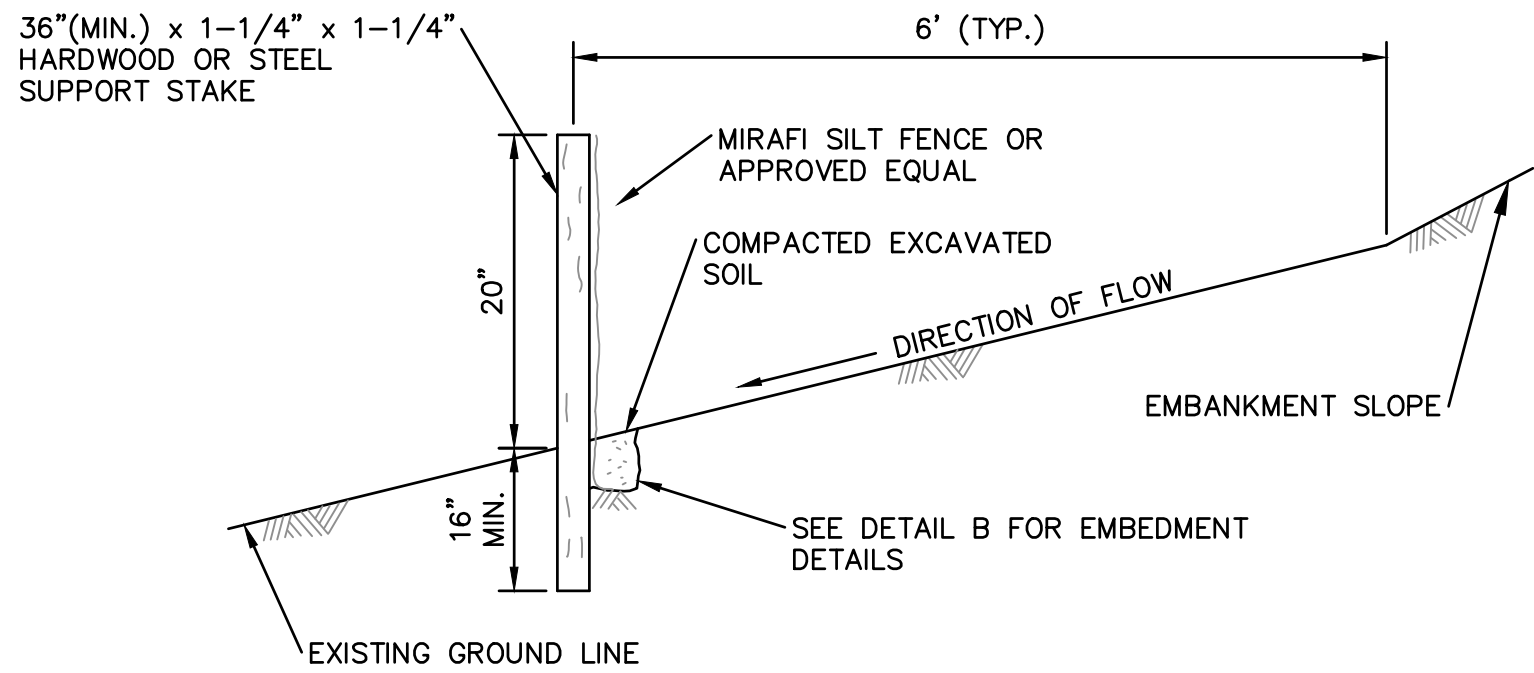
McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP
REV	DATE	DESCRIPTION	BY

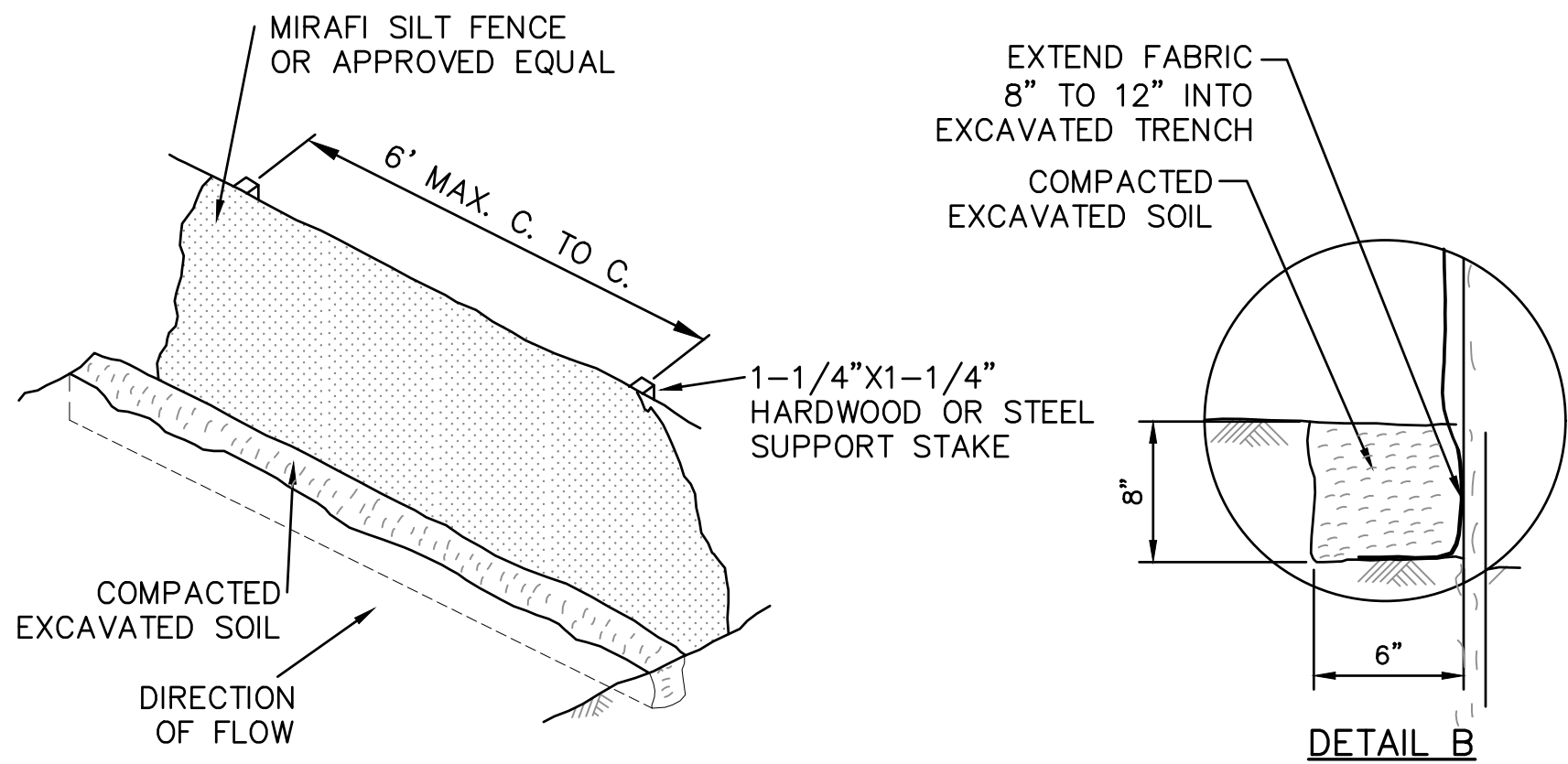
CITY OF KEENE
KEENE, NEW HAMPSHIRE
WINCHESTER STREET
RECONSTRUCTION

DETAILS (SHEET 6 OF 20)
STORMWATER DETAILS 1

SCALE: AS SHOWN	DESIGN: BEP	DT-06 13 OF 142
DRAWN: MJF	PROJECT:18022.01	
CHECKED: EWM	DATE:SEPTEMBER 2020	



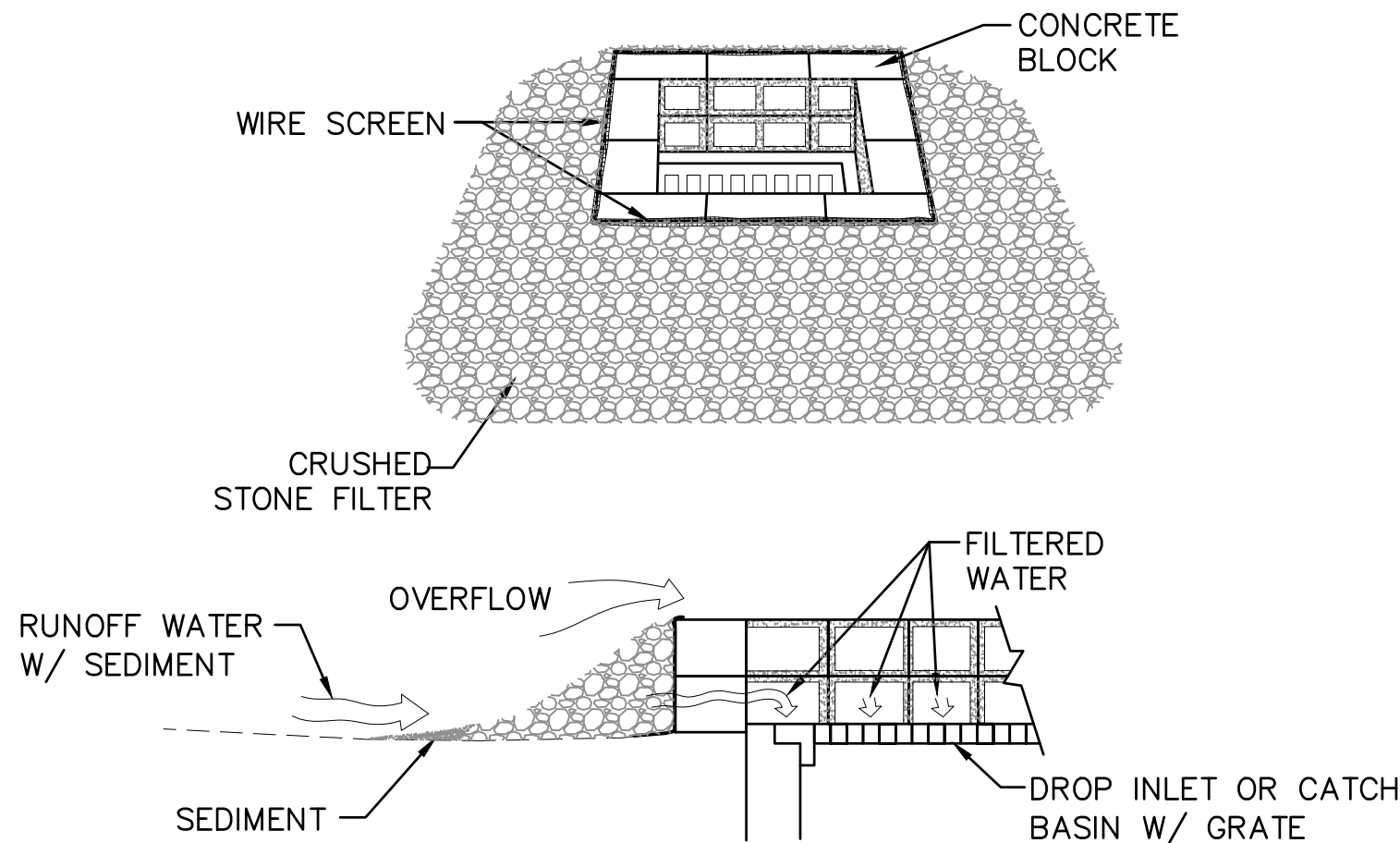
TOE OF SLOPE CONDITION



NOTES:

1. FILTER FABRIC SILT FENCE MUST BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
2. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ONE-HALF (1/2) THE ABOVE GROUND HEIGHT OF THE FENCE.
3. ANY FENCE SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

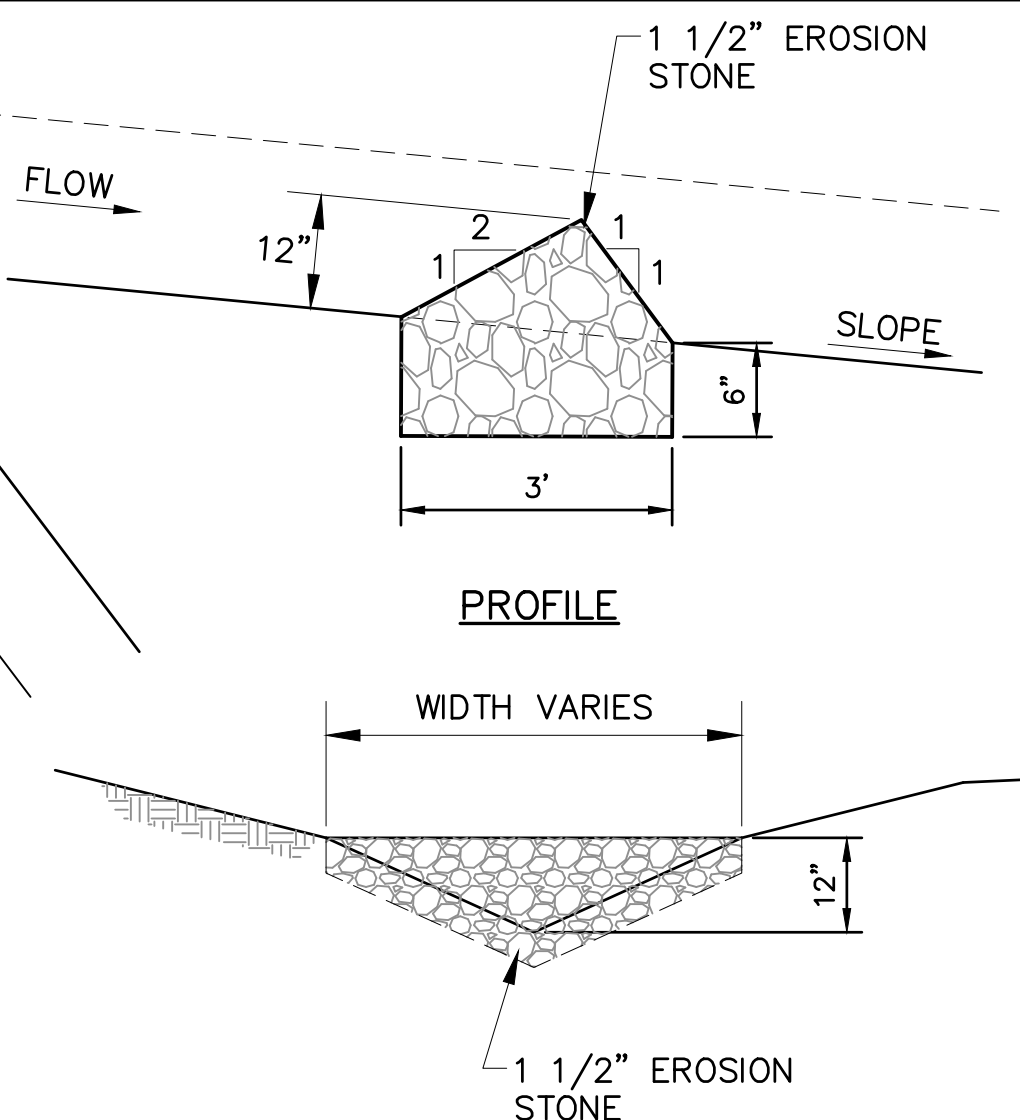
FILTER FABRIC SILT FENCE
NOT TO SCALE



BLOCK & GRAVEL DROP INLET/CATCH BASIN
(SEDIMENT FILTER) INLET PROTECTION
NOT TO SCALE

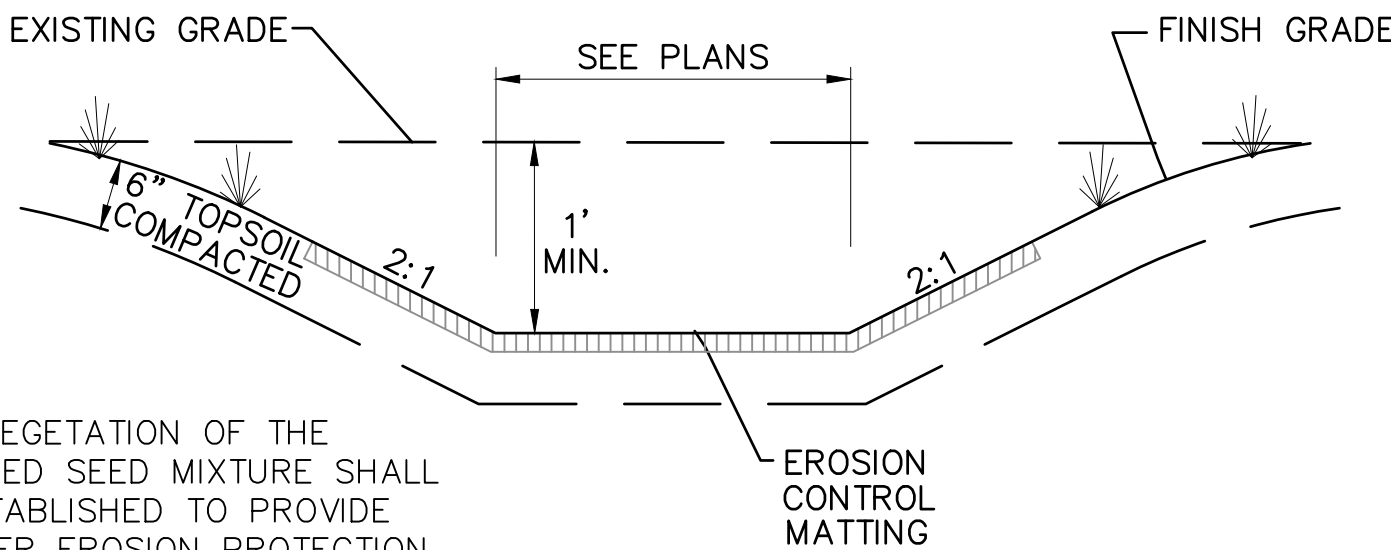
PROVIDE DAMS @ 50' MAX.
INTERVALS OR 5' MAX.
ELEVATION DROP BETWEEN
DAMS, WHICHEVER IS LESS
DISTANCE

PLAN VIEW



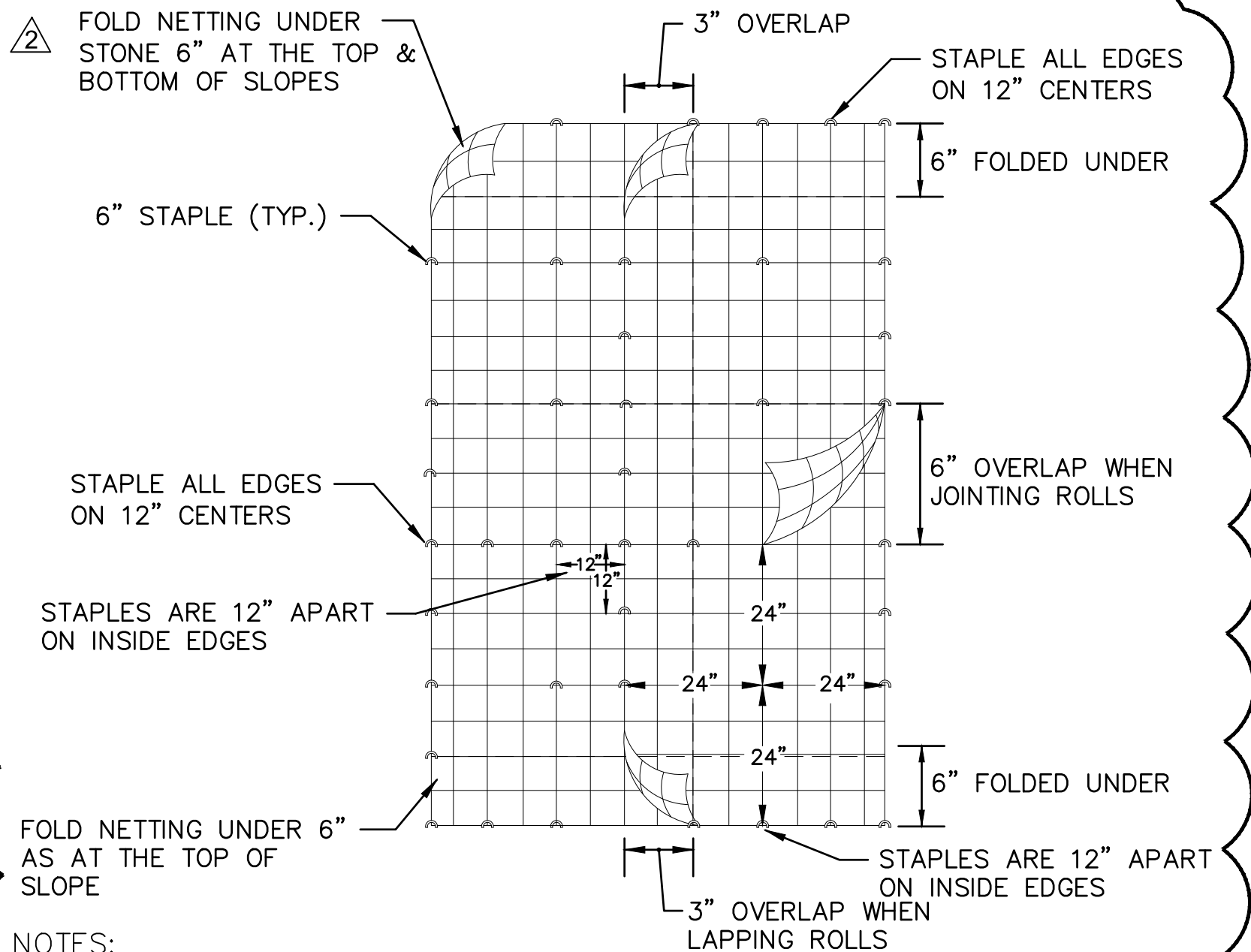
CROSS SECTION

STONE GRADE STABILIZATION
(CHECK DAM) STRUCTURES
NOT TO SCALE



NOTE:
FULL VEGETATION OF THE
SPECIFIED SEED MIXTURE SHALL
BE ESTABLISHED TO PROVIDE
PROPOER EROSION PROTECTION.

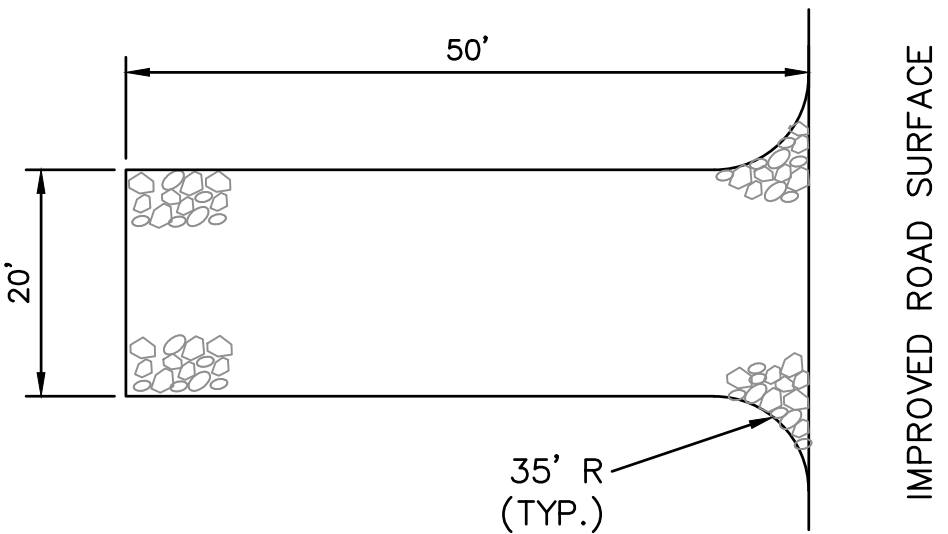
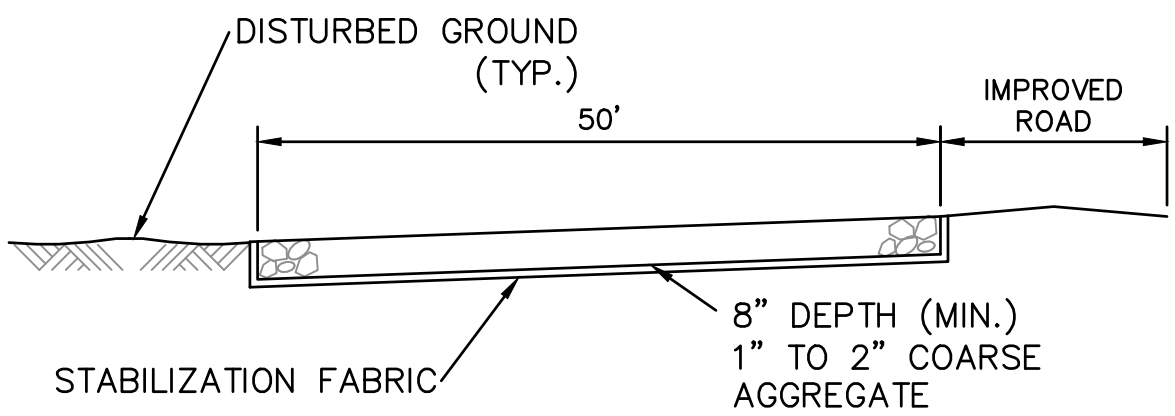
GRASS-LINED SWALE
NOT TO SCALE



NOTES:

1. NO STAPLES TO BE OVER 24" APART CENTER TO CENTER
2. MATTING SHALL CONSIST OF "WILDLIFE FRIENDLY" OPTIONS SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUIVALENT. WELDED PLASTIC AND PHOTO-BIODEGRADABLE PLASTIC SHALL NOT BE USED.

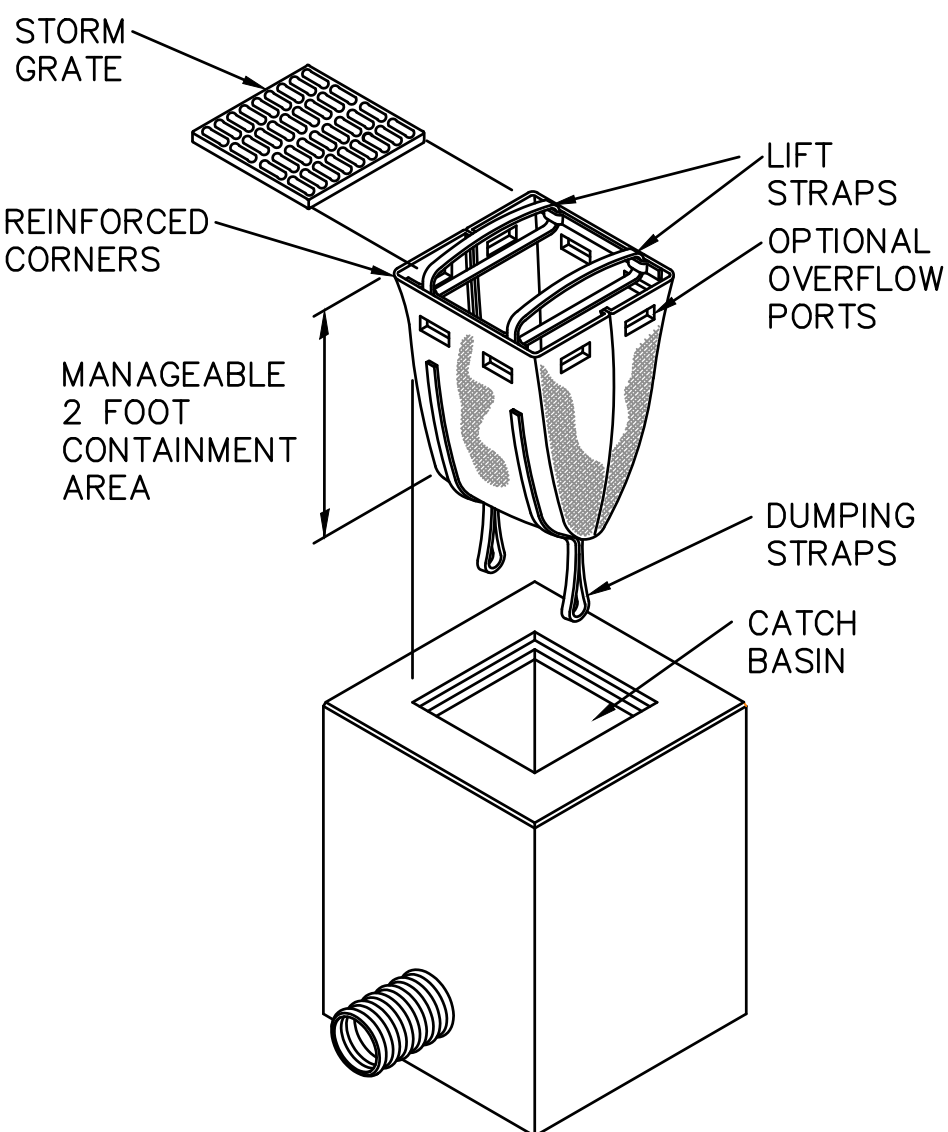
MULCH NETTING INSTALLATION
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

GENERAL NOTES:

1. SILT FENCE SHALL CONSIST OF AN APPROVED PREFABRICATED SILT FENCE WITH FABRIC ATTACHED TO POSTS AND SHALL BE ASSEMBLED IN THE FIELD ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS. WIRE MESH REINFORCEMENT AND/OR CLOSER POST SPACING MAY BE ORDERED BY THE ENGINEER IN AREAS WHERE HIGH RUNOFF VOLUMES ARE ANTICIPATED, OR LOW SPOTS WHERE SEDIMENT WILL BE COLLECTED.
2. PRIOR TO BEGINNING EARTHWORK OPERATIONS AT LOCATIONS DIRECTED BY THE ENGINEER, SILT FENCE SHALL BE CONSTRUCTED ALONG THE TOE OF PROPOSED EMBANKMENT AT THE LIMITS OF CLEARING.



CATCH BASIN FILTER
NOT TO SCALE

NOTE:

STABILIZED CONSTRUCTION ENTRANCE THICKNESS WILL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING NEW ROCK AND REMOVING "CLOGGED" ROCK AS NECESSARY. A STOCKPILE OF ROCK MATERIAL WILL BE STORED ON THE SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION		
2	11/30/20	NHFG REVISIONS	BEP	DETAILS (SHEET 9 OF 20) EROSION CONTROL DETAILS 1		
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP			
REV	DATE	DESCRIPTION	BY			
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				SCALE: AS SHOWN	DESIGN: BEP	DT-09 16 OF 142
				DRAWN: MJF	PROJECT: 18022.01	
				CHECKED: EWM	DATE: SEPTEMBER 2020	

EROSION CONTROL SPECIFICATIONS:

1. SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3 – EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION" 2008. THE CONTRACTOR SHALL HAVE REFERENCE TO THIS BOOK.
2. RECOGNIZING THAT IMMEDIATE ATTENTION TO EROSION CONTROL PRACTICES DRAMATICALLY IMPROVES SOIL AND MOISTURE CONSERVATION AND REDUCES NEGATIVE IMPACTS ON WATER QUALITY. THE CONTRACTOR SHALL GIVE HIGH PRIORITY TO THE DAILY AND TIMELY INSTALLATION OF BOTH TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES. IMMEDIATE INSTALLATION OF PRACTICES USUALLY REDUCES LONG TERM COSTS TO THE CONTRACTOR AND PROVIDES BENEFITS TO THE DEVELOPER AND THE PUBLIC GOOD.
3. EROSION CONTROL PRACTICES ARE SHOWN ON THE PLANS WITH RESPECT TO LOCATION AS DETERMINED FROM EXISTING TOPOGRAPHY. CHANGES MAY BE INDICATED IN THE FIELD TO IMPROVE EROSION AND SEDIMENT CONTROL.
4. CONSTRUCTION SHALL PROCEED UNIT BY UNIT TO FACILITATE INSTALLATION OF EROSION CONTROL MEASURES AND THE COMPLETION OF GRADING, SEEDING, AND LANDSCAPING AS SOON AS POSSIBLE WITHIN A UNIT. THIS PROCEDURE SHOULD RESULT IN THE EXPOSURE OF THE SMALLEST PRACTICAL LAND AREA AT ANY ONE TIME.
5. AREAS ADJACENT TO STREAMS CALL FOR PARTICULAR ATTENTION WITH REGARD TO SILT INTERCEPTION. INSTALL SILT FENCES AS SHOWN ON PLAN AND IN DETAIL BEFORE EARTHWORK COMMENCES. ADDITIONAL FENCING MAY BE REQUIRED AS WORK CONTINUES.
6. ALL DISTURBED AREAS AND ALL PROPOSED GRASSED AREAS SHALL HAVE TOPSOIL SPREAD (4" MINIMUM) AND BE LIMED, FERTILIZED, TILLED, SEEDED AND MULCHED. ALL SLOPES 3:1 (1 RISE ON 3 RUN) AND STEEPER SHALL HAVE MULCH HELD IN PLACE WITH NETTING (OR OTHER APPROVED BIODEGRADABLE MATTING MATERIAL), STAPLED AND STAKED. EACH AREA SHALL BE LIMED, FERTILIZED, PREPARED, SEEDED AND MULCHED (WITH ANCHORED NETTING AS REQUIRED) WITHIN 3 DAYS OF FINAL GRADING OR TEMPORARILY STABILIZED WITHIN 21 DAYS OF INITIAL DISTURBANCE. WHEN PERMANENT SEEDING CANNOT BE INSTALLED BY SEPTEMBER 15, TEMPORARY SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL BE INSTALLED IMMEDIATELY AND MAINTAINED IN THAT CONDITION UNTIL PERMANENT PRACTICES CAN BE INSTALLED IN THE FOLLOWING PLANTING SEASON.
7. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY TIME BEFORE DISTURBED AREAS ARE STABILIZED.
8. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE (SEE NOTE 10).
9. TEMPORARY STABILIZATION OF DISTURBED AREAS:

SEEDBED PREPARATION: TILL THREE INCHES DEEP MIXING IN FERTILIZER. APPLY LIME 2 TONS/ACRE (100#/1,000 SQ. FT.)
FERTILIZE: UNIFORMLY APPLY NOT LESS THAN 300#/ACRE (7#/1,000 SQ. FT.) OF 10–20–20 OR EQUIVALENT.

SEEDING: SELECT APPROPRIATE SEEDING MIXTURE FROM TABLE 1 BELOW. SPREAD SEED UNIFORMLY. FIRM SOIL BY ROLLING OR PACKING; IF NOT FEASIBLE, THEN RAKE LIGHTLY TO COVER SEEDS.

MULCHING: MULCH ALL DISTURBED AREAS WITH 1–1/2 TO 2 TONS OF HAY OR STRAW PER ACRE (70–90#/1,000 SQ. FT.). ANCHOR ON ALL SLOPES 3:1 OR STEEPER AND FLATTER SLOPES SUBJECT TO WASH OR WIND BLOWN. USE JUTE (OR OTHER BIODEGRADABLE) NETTING. STAKING AND STAPLING MAY BE REQUIRED.

TABLE 1 – PLANT SELECTION AND SEEDING RATES			
SPECIES	PER ACRE	PER 1000 SQ.FT.	REMARKS
WINTER RYE	2 BU OR 112 LBS.	2.5 LBS.	BEST FOR FALL SEEDING. SEED AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO DEPTH OF ONE INCH.
OATS	2 1/2 BU OR 80 LBS.	2 LBS.	BEST FOR SPRING SEEDINGS. LATER THAN MAY 15 FOR SUMMER PROTECTION. SEED TO DEPTH OF ONE INCH.
ANNUAL RYE	40 LBS.	1 LB.	GROWS QUICKLY, BUT IS OF SHORT GRASS DURATION USE WHERE APPEARANCES ARE IMPORTANT. COVER SEED WITH NO MORE THAN 1/4 INCH OF SOIL. WITH MULCH, SEEDING MAY BE DONE THROUGHOUT GROWING SEASON. OTHERWISE SEED EARLY SPRING OR BETWEEN AUGUST 15 & SEPTEMBER 15.

10. PERMANENT STABILIZATION OF DISTURBED AREAS:

SEED BED PREPARATION: TOPSOIL (SANDY LOAM, LOAM, OR SILT LOAM), FRIABLE, FREE OF TREE ROOTS, WEEDS, STONES MORE THAN 1–1/2 INCHES IN DIAMETER OR LENGTH SHALL BE PLACED OVER ALL DISTURBED AREAS IN A 4" (MINIMUM) THICK LAYER.

TOPSOIL: TOPSOIL SHALL BE FREE OF HERBICIDES AND TOXIC MATERIALS. TILL THREE INCHES DEEP MIXING IN THE FERTILIZER AND LIME. APPLY LIME AT RATES INDICATED IN TABLE "A".

SEEDING: SELECT APPROPRIATE SEEDING MIXTURE FROM TABLE "C". SPREAD SEED UNIFORMLY. FIRM SOIL BY ROLLING OR PACKING; IF NOT FEASIBLE, THEN RAKE LIGHTLY TO COVER SEEDS.

MULCHING: MULCH ALL DISTURBED AREAS WITH 1–1/2 TO 2 TONS OF HAY OR STRAW PER ACRE (70 – 90#/1,000 SQ. FT.). ANCHOR MULCH ON ALL SLOPES 3:1 OR STEEPER AND ON FLATTER SLOPES SUBJECT TO WASH (WATERWAYS AND/OR WINDBLOWN) USING BIODEGRADABLE NETTING (OR OTHER APPROVED BIODEGRADABLE MATTING MATERIAL), WITH STAKING AND STAPLING.

TABLE "A"–LIME APPLICATION RATES		
EXISTING SOIL pH	LIMESTONE TO BE ADDED	
	TONS/ACRE	POUNDS/CY
4.0–4.4	3	12
4.5–4.9	2	8
5.0–5.4	1	4
UNKNOWN	2	8

TABLE "C" – SEEDING GUIDE

USE	SEEDING MIXTURE 1/	SOIL DRAINAGE			
		DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNEL WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSABLE LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F	FAIR	EXCELLENT	EXCELLENT	2/
	G	FAIR	EXCELLENT	EXCELLENT	2/
GRAVEL PIT – SEE PM–NH–24 RECOMMENDATIONS REGARDING RECLAMATION OF SAND AND GRAVEL PITS. *					
1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE "D".					
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREAS AND ATHLETIC FIELDS.					
* SEE "VEGETATING NEW HAMPSHIRE SAND AND GRAVEL PITS; TECHNICAL NOTE PM–NH–24, UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, REVISION APRIL, 1991.					

11. TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED. 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 STONE OR RIPRAP HAS BEEN INSTALLED; OR
D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

MAINTENANCE: DURING THE CONSTRUCTION PERIOD AND UNTIL SUCH TIME AS THE LONG TERM VEGETATION IS ESTABLISHED TO A 70% VEGETATIVE STAND.
A. DISTURBED AREAS WILL BE FERTILIZED AND RESEEDED.
B. CATCH BASINS WILL BE CHECKED AND CLEANED AS NECESSARY.
C. DRAINAGE AND GRASS TREATMENT SWALES SHALL BE CHECKED FREQUENTLY AND CLEANED AS REQUIRED.
D. THE SILT FENCES AND HAYABLE DIKES WILL BE CHECKED ON A REGULAR BASIS AND REPAIRED AS NECESSARY TO CORRECT ANY DAMAGE, DETERIORATION, AND SHORT–CIRCUITING.

12. REFER TO "EROSION AND SEDIMENT CONTROL PLAN" PRIOR TO ANY SITE DISTURBANCE. CONTACT ENGINEER FOR COPIES OF PLAN.

INSPECTIONS: THE ENGINEER SHALL BE CONTACTED ON A REGULAR BASIS TO INSPECT ALL EROSION CONTROL PRACTICES AS WELL AS THE MAINTENANCE OF THE EROSION CONTROL COMPONENTS. REFER TO CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. EROSION CONTROL PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

13. ALL TREATMENT SWALES, DITCHES, AND LEVEL LIP SPREADERS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

14. FOR SPECIAL WINTER CONSTRUCTION CONSIDERATIONS, THE CONTRACTOR SHALL REFER TO THE "EROSION & SEDIMENT CONTROL PLAN".

15. THIS PROJECT SHALL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430.53 AND CHAPTER AGR 3800 RELATIVE TO SPECIES.

16. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPS ARE STABILIZED.

17. CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

TABLE "D" – MIXTURES & RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.
A. TALL FESCUE CREEPING RED FESCUE REDTOP	20	0.45
	20	0.45
	2	0.05
TOTAL	42	0.95
B. TALL FESCUE CREEPING RED FESCUE CROWN VETCH OR FLATPEA	15	0.35
	10	0.25
	15	0.35
	30 40 or 55	0.75 0.95 or 1.35
TOTAL	40	0.95
C. TALL FESCUE CREEPING RED FESCUE BIRDSFOOT TREFOIL	20	0.45
	20	0.45
	8	0.20
	48	1.10
D. BIRDSFOOT TREFOIL REDTOP	20	0.50
	10	0.20
	30	0.70
E. TALL FESCUE FLATPEA	20	0.45
	30	0.75
	50	1.20
F. CREEPING RED FESCUE 1/ KENTUCKY BLUEGRASS 1/	50	1.15
	50	1.15
	100	2.30
G. TALL FESCUE 1/	150	3.60

OTHER SEED MIXTURES AND SEEDING RATES AS RECOMMENDED BY THE USDA – NATURAL RESOURCES CONSERVATION SERVICE MAY BE USED WITH PRIOR WRITTEN PERMISSION FROM THE ENGINEER.

CONSTRUCTION SEQUENCE:

1. THE CONTRACTOR SHALL CONDUCT A PRE–CONSTRUCTION CONFERENCE WITH CITY OFFICIALS PRIOR TO ANY WORK COMMENCING ON SITE.
2. FELL AND CLEAR TREES, AS REQUIRED. PLACE JOB TRAILER AT SPECIFIED LOCATION AND INSTALL CONSTRUCTION ENTRANCE(S). STABILIZE THE CONSTRUCTION ENTRANCE(S) WITH COARSE AGGREGATE 8 INCHES (MINIMUM) IN DEPTH, ON TOP OF A GEOTEXTILE, TO PREVENT OFF–SITE TRACKING BY VEHICLES AND EQUIPMENT.
3. INSTALL SILT FENCE AT ALL LOCATIONS INDICATED ON PLAN AND AT OTHER LOCATIONS AS DETERMINED BY THE ENGINEER. INSTALL OTHER TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO EARTHWORK COMMENCING.
4. GRUB SITE AND DISPOSE OF DEBRIS, AS NECESSARY; CONTRACTOR TO LEGALLY DISPOSE OF DEBRIS OFF THE SITE.
5. STOCKPILE TOPSOIL AND INSTALL ASSOCIATED EROSION CONTROL MEASURES, I.E., SILT FENCE, AND MULCH.
6. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE (BEFORE ROUGH GRADING THE SITE) AND SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. INSTALL CLOSED DRAINAGE SYSTEM.
8. RECLAIM/REMOVE EXISTING PAVEMENT AND SELECT MATERIAL AND PLACE SELECT MATERIALS AND PAVEMENT FOR THE LIMITS OF THE PROPOSED ROADWAY IMPROVEMENTS. THE LIMITS OF THE ROADWAY IMPROVEMENTS SHALL BE STABILIZED WITHIN 72 HOURS AFTER GRADING.
9. INSPECT ALL DISTURBED AREAS ON A WEEKLY BASIS AND AFTER EVERY ONE–HALF INCH OF RAINFALL. FOLLOWING THESE INSPECTIONS, INSTALL ANY AND ALL TEMPORARY DRAINAGE, EROSION, AND SEDIMENT CONTROL PRACTICES AS INDICATED OR AS REQUIRED, I.E., DIVERSION CHANNELS, BERMS, DRAINS, DITCHES, SILT SACKS, SILT FENCES, SEED AND MULCH, OR ANY OTHER BEST MANAGEMENT PRACTICES AS RECOMMENDED AND SPECIFIED IN THE "STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS OF NEW HAMPSHIRE" (USDA – SOIL CONSERVATION SERVICE).
10. PLACE TOPSOIL, COMPLETE PERMANENT FERTILIZING, LIMING, SEEDING AND MULCHING, AND INSTALL LANDSCAPE PLANTING.
11. CLEAN AND RESTORE SILT DESTINATION SITES. REMOVE OTHER EROSION CONTROL PRACTICES ON A TIMELY BASIS AS PERMANENT MEASURES TAKE HOLD. SPOT FERTILIZE, SEED, AND MULCH AS REQUIRED. NO RUNOFF SHALL BE DIRECTED TO THE PERMANENT MEASURES UNTIL THEY ARE ESTABLISHED.
12. INSPECT AND MAINTAIN GRADING, EROSION CONTROL AND SEDIMENT CONTROL PRACTICES WEEKLY AND INSPECTION SHOULD OCCUR AFTER EVERY 0.5" OR GREATER RAINFALL WITHIN A 24 HOUR PERIOD.
13. REFER TO "EROSION AND SEDIMENT CONTROL PLAN" FOR ADDITIONAL DETAILS RELATIVE TO THE REQUIRED CONSTRUCTION SEQUENCE. MAINTENANCE OF ALL EROSION CONTROL COMPONENTS SHALL BE AN ONGOING PRACTICE AND IN STRICT ACCORDANCE WITH THE APPROVED PLAN.

SPECIAL WINTER CONSIDERATIONS

THE MAJOR FOCUS OF WINTER EROSION AND SEDIMENT CONTROL IS THE PERIODS OF INTENSE RUNOFF ASSOCIATED WITH MID–WINTER THAWS AND RAINSTORMS, AND THE SPRING MELT.

FROZEN GROUND MAKES THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES VERY DIFFICULT. INSTALLATION SHOULD TAKE PLACE WELL BEFORE THE GROUND FREEZES. MAINTENANCE IN WINTER WILL BE MUCH MORE TIME CONSUMING AND DIFFICULT THAN IN THE SUMMER. THE OVERALL CONSTRUCTION SCHEDULE AND THE WEEKLY WORK SCHEDULE WILL BE DEVELOPED TO INCREASE TIME, EFFORT, AND MANPOWER DEVOTED TO MAINTAINING THE EROSION AND SEDIMENT CONTROL MEASURES.

INTENSE RUNOFF IN MID–WINTER THAWS AND RAINSTORMS, AND THE SPRING MELT PERIOD, CAN RESULT IN MORE SEVERE EROSION AND SEDIMENTATION PROBLEMS THAN RUNOFF FROM SUMMER STORMS. THE SOIL IS OFTEN COMPLETELY SATURATED WITH WATER, AND IS ALSO OFTEN UNDERLAIN BY A FROST LAYER. BOTH OF THESE FACTORS RESULT IN A GREATER PERCENTAGE OF THE RAIN OR MELTWATER RUNNING OVER THE GROUND SURFACE. WINTER AND SPRING RAINSTORMS ARE OFTEN HEAVIER AND MORE INTENSE THAN SUMMER SHOWERS. FOR THESE REASONS, EROSION AND SEDIMENTATION CAN BE ESPECIALLY SEVERE IN MID–WINTER THAWS AND THE SPRING MELT.

1. CONTROL MEASURES FOR WINTER CONSTRUCTION:

A. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLANTING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING ELSEWHERE. 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;

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

C. AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF GRAVEL PER NHDOT ITEM 304.2.

D. MINIMIZE DISTURBED AREA AND TIME OF DISTURBANCE. DISTURBED AREA AND LENGTH OF DISTURBANCE SHALL BE MINIMIZED ESPECIALLY BETWEEN OCTOBER 15TH AND MAY 1ST.

E. GRASSED OR RIP RAPPED SWALES AND DITCHES: INSTALLATION WILL OCCUR BEFORE GROUND FREEZES. CHANNELS ARE TO BE STABILIZED WITH STONE, RIPRAP, OR VEGETATION IMMEDIATELY. INSPECTIONS ARE TO BE FREQUENT WITH REMOVAL OF ANY FLOW BLOCKAGE CAUSED BY ICE OR SEDIMENT.

F. MULCHING: MULCH ALONE SHOULD NOT BE CONSIDERED AN ADEQUATE EROSION AND SEDIMENT CONTROL TECHNIQUE FOR AREAS THAT ARE DISTURBED IN THE WINTER OR SPRING. MULCH IS EASILY WASHED AWAY BY INTENSE RUNOFF FLOWING OVER SATURATED OR FROZEN SOIL. IT IS ESSENTIAL THAT MULCH BE LAID DOWN IN SUCH A WAY THAT IT WILL NOT BLOW OR WASH AWAY.

G. SILT FENCE: INSTALLATION IS REQUIRED BEFORE THE GROUND FREEZES, OTHERWISE STAKES WILL BE DIFFICULT TO DRIVE. INSPECT FREQUENTLY AND REMOVE ANY COLLECTED SEDIMENT PERIODS IN ORDER TO PROVIDE AS MUCH CAPACITY AS POSSIBLE.

H. SNOW FENCE: INSTALLATION IS REQUIRED BEFORE THE GROUND FREEZES OTHERWISE STAKES WILL BE DIFFICULT TO DRIVE. FENCES MUST BE PLACED LIBERALLY AROUND THE WORK SITE TO KEEP SOIL DISTURBANCE TO AN ABSOLUTE MINIMUM.

I. STONE CHECK DAMS: PER DETAIL THE PLACEMENT WILL OCCUR IN SWALES AND DITCHES AFTER FINAL GRADING AND IS TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED.

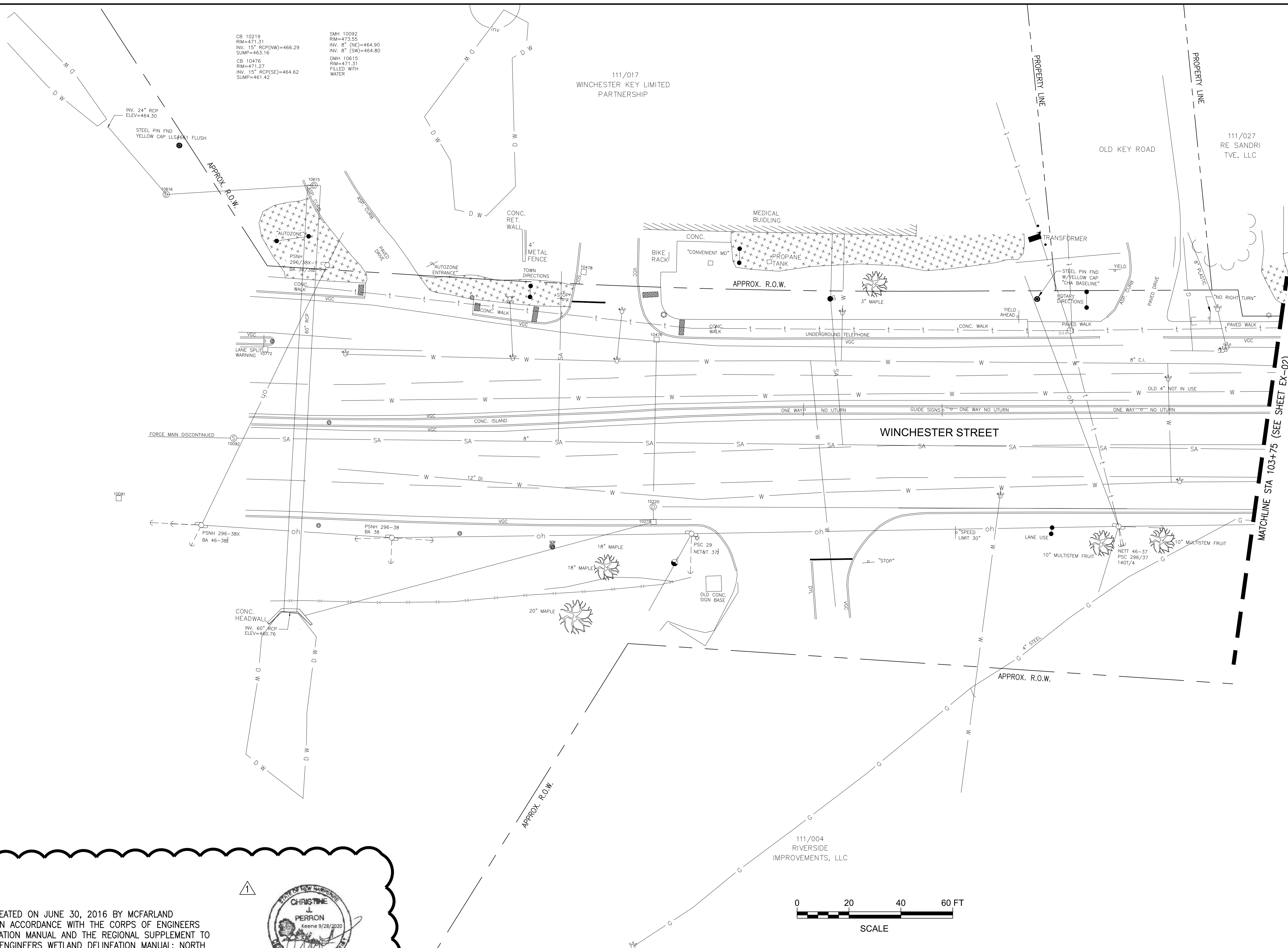
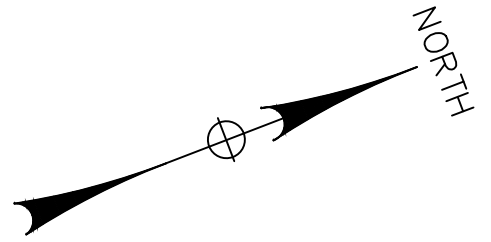
2. INSPECTION AND MAINTENANCE

INSPECTION OF EROSION AND SEDIMENT CONTROL MEASURES IS REQUIRED MORE FREQUENTLY IN THE WINTER AND SPRING THAN IN THE SUMMER. CAREFUL ATTENTION MUST BE GIVEN TO WEATHER PREDICTIONS. INSPECTION OF ALL CONTROL MEASURES WILL BE ONGOING TO ENSURE THAT STRUCTURES WILL MANAGE THE POTENTIALLY HEAVY AND INTENSE RUNOFF. CONSTANT MAINTENANCE OF CRITICAL CONTROL MEASURES MAY BE NECESSARY DURING THE WINTER AND EARLY SPRING TO PREVENT FAILURE OR OVERLOADING OF CONTROL MEASURES. A SECOND LINE OF CONTROL WILL BE QUICKLY INSTALLED IF PROBLEMS OCCUR. A SUBSTANTIAL AMOUNT OF TIME, EQUIPMENT, AND MANPOWER SHALL BE DEVOTED TO EROSION AND SEDIMENT CONTROL.

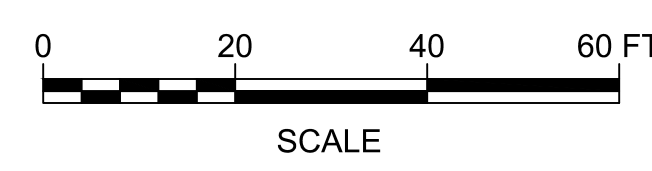
3. FOLLOW–UP

INSTALLATION OF PERMANENT VEGETATIVE CONTROLS WILL BE REQUIRED AS EARLY AS IS PRACTICAL AT THE BEGINNING OF THE GROWING SEASON.

				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION		
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP	DETAILS (SHEET 10 OF 20) EROSION CONTROL DETAILS 2		
REV	DATE	DESCRIPTION	BY			
				McFarland Johnson		
				53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301		
				SCALE: AS SHOWN	DESIGN: BEP	DT-10 17 OF 142
				DRAWN: MJF	PROJECT:18022.01	
				CHECKED: EWM	DATE:SEPTEMBER 2020	



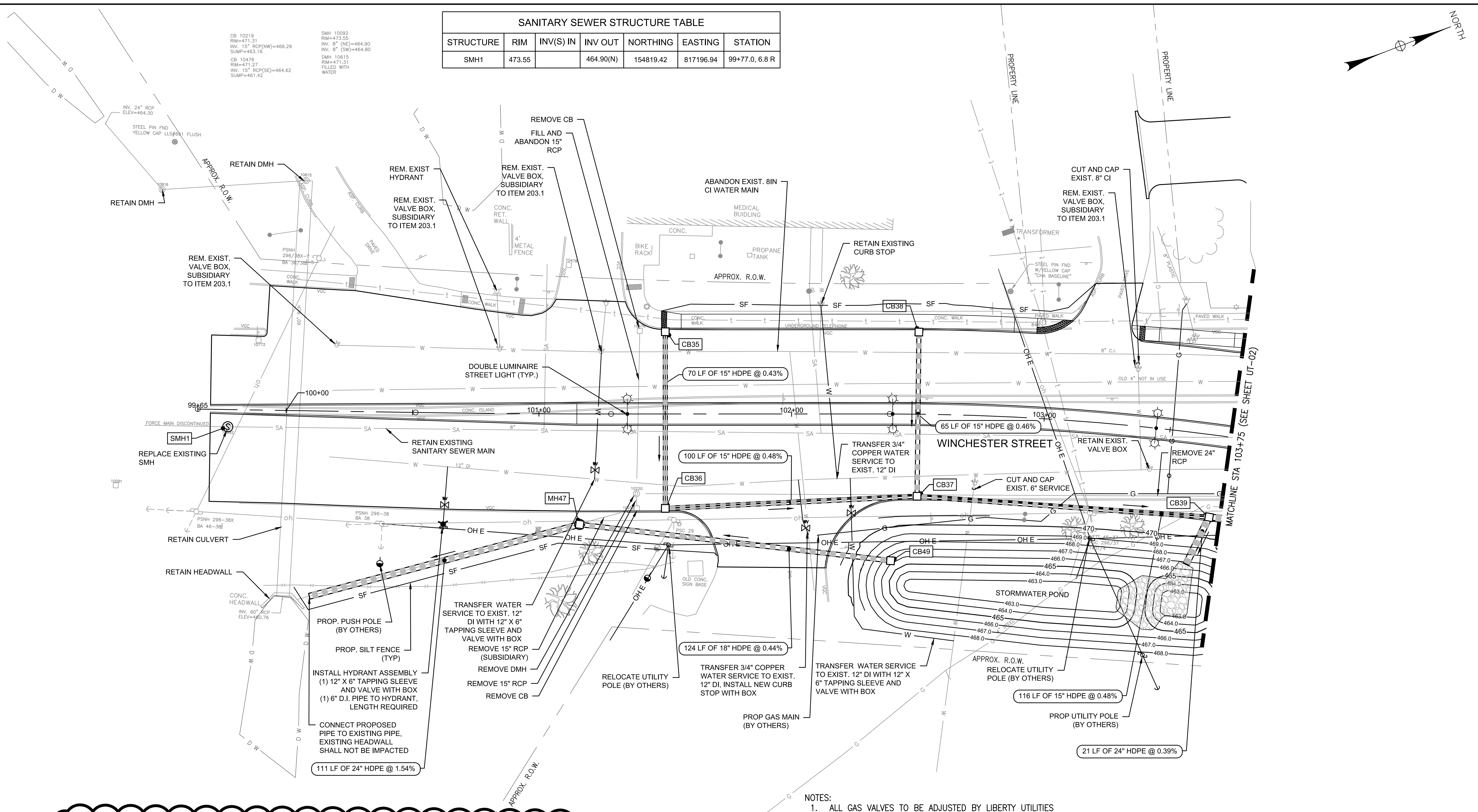
NOTE:
WETLANDS DELINEATED ON JUNE 30, 2016 BY MCFARLAND JOHNSON, INC. IN ACCORDANCE WITH THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTH EAST REGION, VERSION 2.0, JANUARY 2012, US ARMY CORPS OF ENGINEERS.



CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION			
EXISTING CONDITIONS PLAN (SHEET 1 OF 6)			
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP
REV	DATE	DESCRIPTION	BY
		McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301	
SCALE: 1"=20'		DESIGN: BEP	EX-01 28 OF 142
DRAWN: MJF		PROJECT: 18022.01	
CHECKED: EWM		DATE: SEPTEMBER 2020	

M:\18022.01 KEENE\WINCHESTER FINAL\DRAWINGS\18022.01-EXST.DWG

SANITARY SEWER STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION
SMH1	473.55		464.90(N)	154819.42	817196.94	99+77.0, 6.8 R

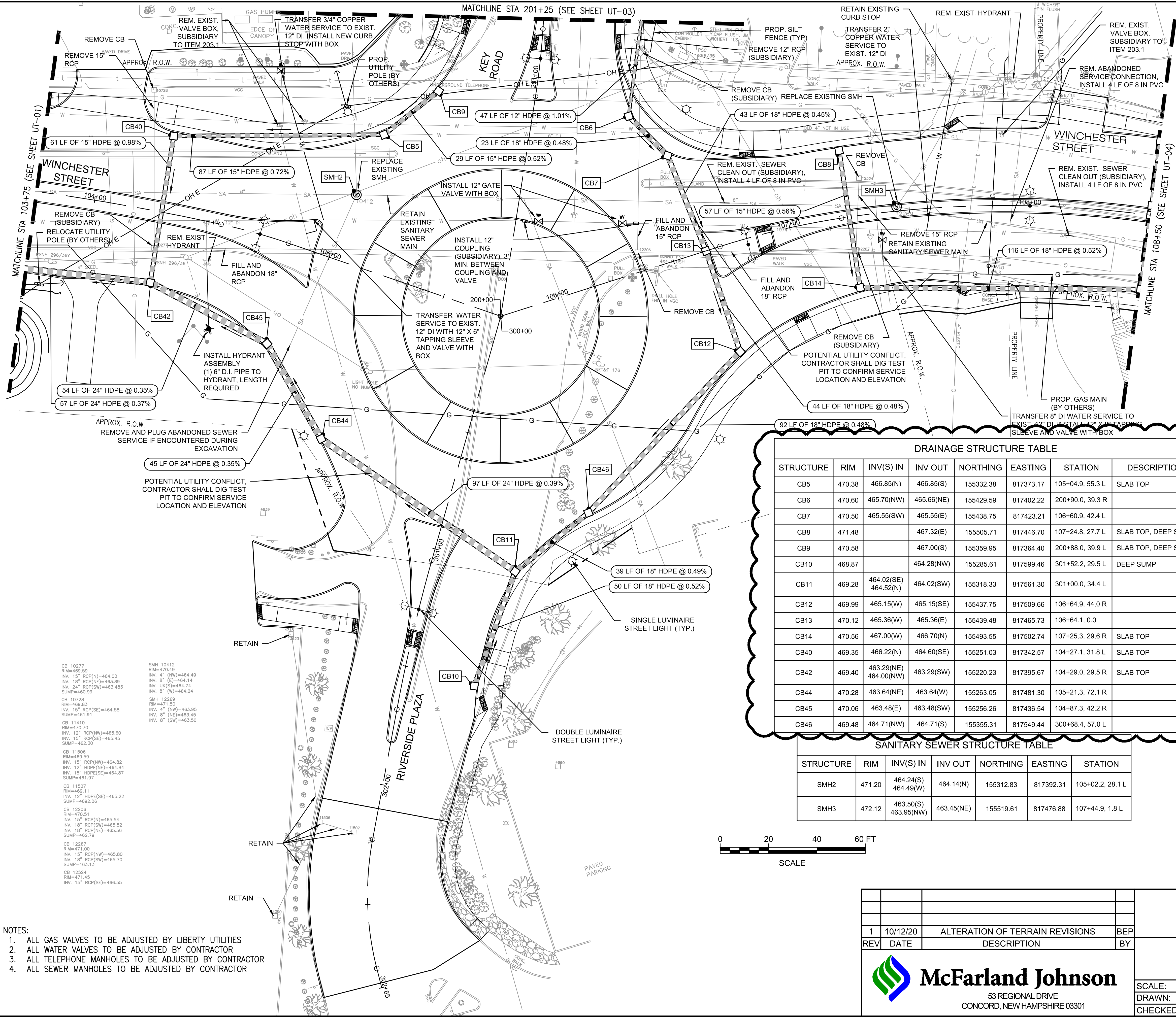


DRAINAGE STRUCTURE TABLE							
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION	DESCRIPTION
CB35	471.42		467.55(E)	154994.54	817223.80	101+50.0, 32.6 L	SLAB TOP, DEEP SUMP
CB36	471.33	467.25(W)	465.62(N)	154969.50	817289.09	101+50.0, 37.4 R	SLAB TOP
CB37	470.64	466.60(W) 465.14(S)	464.89(NE)	155064.25	817320.27	102+50.0, 32.5 R	SLAB TOP
CB38	470.64		466.90(E)	155088.21	817259.85	102+50.0, 32.5 L	SLAB TOP, DEEP SUMP
CB39	469.70	464.33(SW) 463.08(NE)	463.08(SE)	155169.19	817369.38	103+69.8, 32.5 R	5' DIA.
CB49	467.75		464.50(SW)	155045.34	817340.33	102+39.2, 58.1 R	OUTLET CONTROL STRUCTURE
MH47	472.01	463.95(NE)	463.70(S)	154935.59	817282.89	101+16.2, 43.7 R	

- NOTES:
1. ALL GAS VALVES TO BE ADJUSTED BY LIBERTY UTILITIES
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 4. ALL SEWER MANHOLES TO BE ADJUSTED BY CONTRACTOR



CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION			
UTILITY PLAN (SHEET 1 OF 6)			
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301	SCALE: 1"=20' DRAWN: MJF CHECKED: EWM	DESIGN: BEP PROJECT: 18022.01 DATE: SEPTEMBER 2020	UT-01 61 OF 142



- NOTES:
1. ALL GAS VALVES TO BE ADJUSTED BY LIBERTY UTILITIES
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 4. ALL SEWER MANHOLES TO BE ADJUSTED BY CONTRACTOR

DRAINAGE STRUCTURE TABLE							
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION	DESCRIPTION
CB5	470.38	466.85(N)	466.85(S)	155332.38	817373.17	105+04.9, 55.3 L	SLAB TOP
CB6	470.60	465.70(NW)	465.66(NE)	155429.59	817402.22	200+90.0, 39.3 R	
CB7	470.50	465.55(SW)	465.55(E)	155438.75	817423.21	106+60.9, 42.4 L	
CB8	471.48		467.32(E)	155505.71	817446.70	107+24.8, 27.7 L	SLAB TOP, DEEP SUMP
CB9	470.58		467.00(S)	155359.95	817364.40	200+88.0, 39.9 L	SLAB TOP, DEEP SUMP
CB10	468.87		464.28(NW)	155285.61	817599.46	301+52.2, 29.5 L	DEEP SUMP
CB11	469.28	464.02(SE) 464.52(N)	464.02(SW)	155318.33	817561.30	301+00.0, 34.4 L	
CB12	469.99	465.15(W)	465.15(SE)	155437.75	817509.66	106+64.9, 44.0 R	
CB13	470.12	465.36(W)	465.36(E)	155439.48	817465.73	106+64.1, 0.0	
CB14	470.56	467.00(W)	466.70(N)	155493.55	817502.74	107+25.3, 29.6 R	SLAB TOP
CB40	469.35	466.22(N)	464.60(SE)	155251.03	817342.57	104+27.1, 31.8 L	SLAB TOP
CB42	469.40	463.29(NE) 464.00(NW)	463.29(SW)	155220.23	817395.67	104+29.0, 29.5 R	SLAB TOP
CB44	470.28	463.64(NE)	463.64(W)	155263.05	817481.30	105+21.3, 72.1 R	
CB45	470.06	463.48(E)	463.48(SW)	155256.26	817436.54	104+87.3, 42.2 R	
CB46	469.48	464.71(NW)	464.71(S)	155355.31	817549.44	300+68.4, 57.0 L	

SANITARY SEWER STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION
SMH2	471.20	464.24(S) 464.49(W)	464.14(N)	155312.83	817392.31	105+02.2, 28.1 L
SMH3	472.12	463.50(S) 463.95(NW)	463.45(NE)	155519.61	817476.88	107+44.9, 1.8 L



1

10/12/20

ALTERATION OF TERRAIN REVISIONS

BEP

REV

DATE

DESCRIPTION

BY

McFarland Johnson

53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

CITY OF KEENE
KEENE, NEW HAMPSHIRE
WINCHESTER STREET
RECONSTRUCTION

UTILITY PLAN
(SHEET 2 OF 6)

SCALE: 1"=20'

DESIGN: BEP

DRAWN: MJF

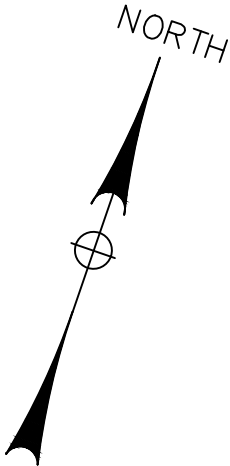
PROJECT:18022.01

CHECKED: EWM

DATE:SEPTEMBER 2020

UT-02

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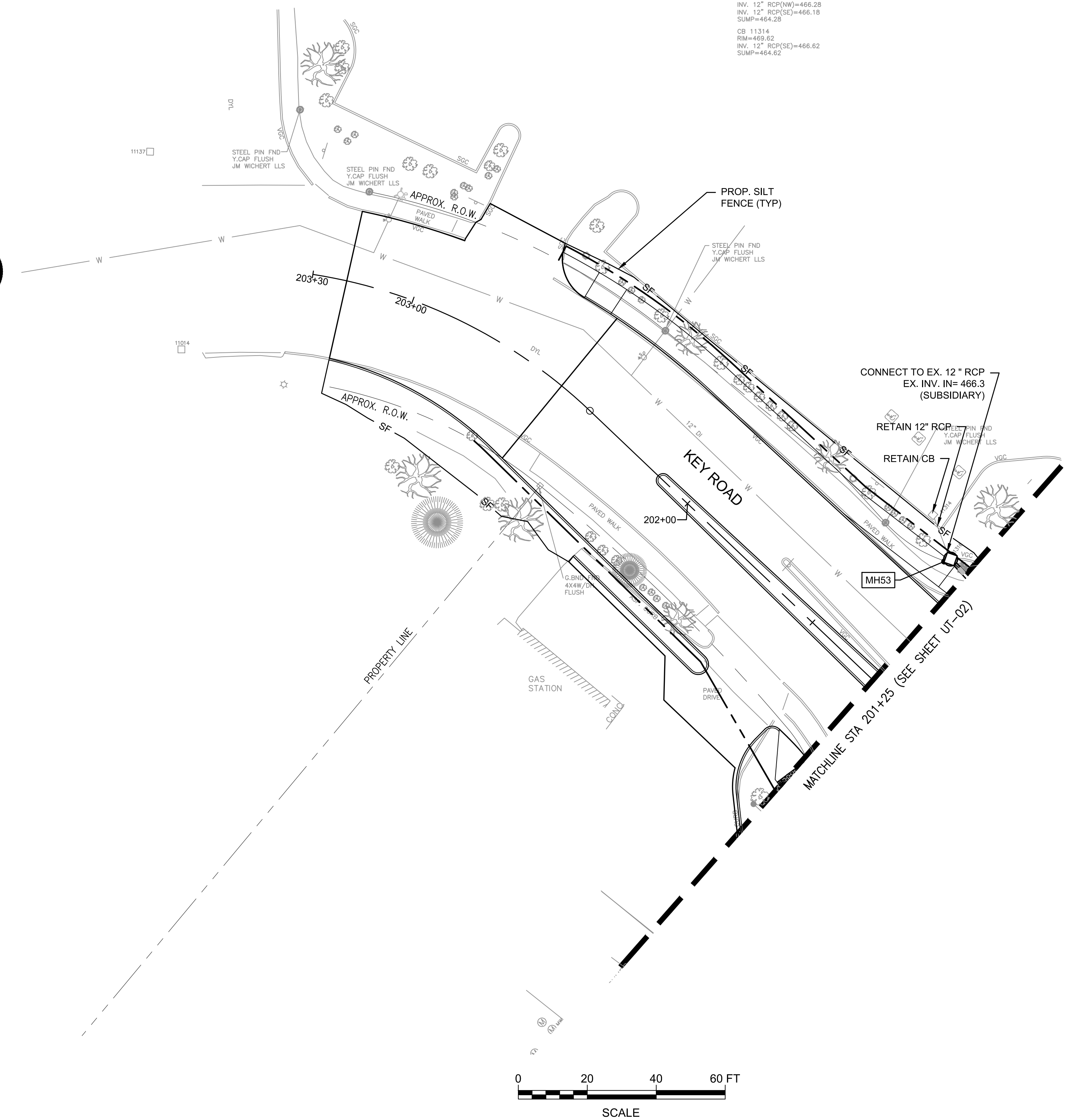


CB 11316
RM=470.18
INV. 12" RCP(NW)=466.28
INV. 12" RCP(SE)=466.18
SUMP=464.28
CB 11314
RM=469.62
INV. 12" RCP(SE)=466.62
SUMP=464.62

DRAINAGE STRUCTURE TABLE

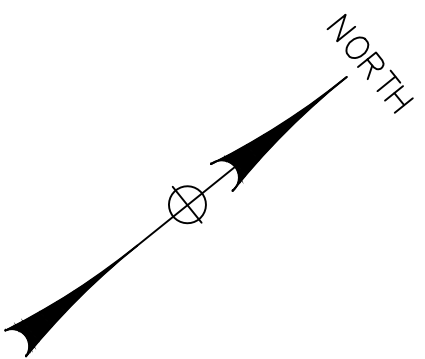
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION	DESCRIPTION
MH53	471.83		466.18(SE)	155452.25	817360.65	201+33.6, 40.9 R	

1



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 - 3. ALL TELEPHONE MANHOLES TO BE ADJUSTED BY CONTRACTOR
 - 4. ALL SEWER MANHOLES TO BE ADJUSTED BY CONTRACTOR

				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP	
REV	DATE	DESCRIPTION	BY	
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				UTILITY PLAN (SHEET 3 OF 6)
SCALE: 1"=20'		DESIGN: BEP	UT-03 63 OF 142	
DRAWN: MJF		PROJECT: 18022.01		
CHECKED: EWM		DATE: SEPTEMBER 2020		



SANITARY SEWER STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION
SMH4	472.17	462.66(SW)	462.61(NE)	155709.42	817594.36	109+70.7, 9.9 R
SMH5	475.54			155894.89	817686.66	111+72.6, 34.3 L

CB 12391
RIM=471.41
INV. 15" RCP(N)=465.91
INV. 18" RCP(NE)=465.86
SUMP=462.89

SMH 12440
RIM=471.91
INV. 8" (NE)=462.61
INV. 8" (SE)=462.66

SMH 13535
RIM=472.63
FILLED WITH GRAVEL

SMH 13559
RIM=471.32
INV. 6" PVC(W)=464.82
INV. UK(SW)=462.57
INV. UK(NE)=462.56

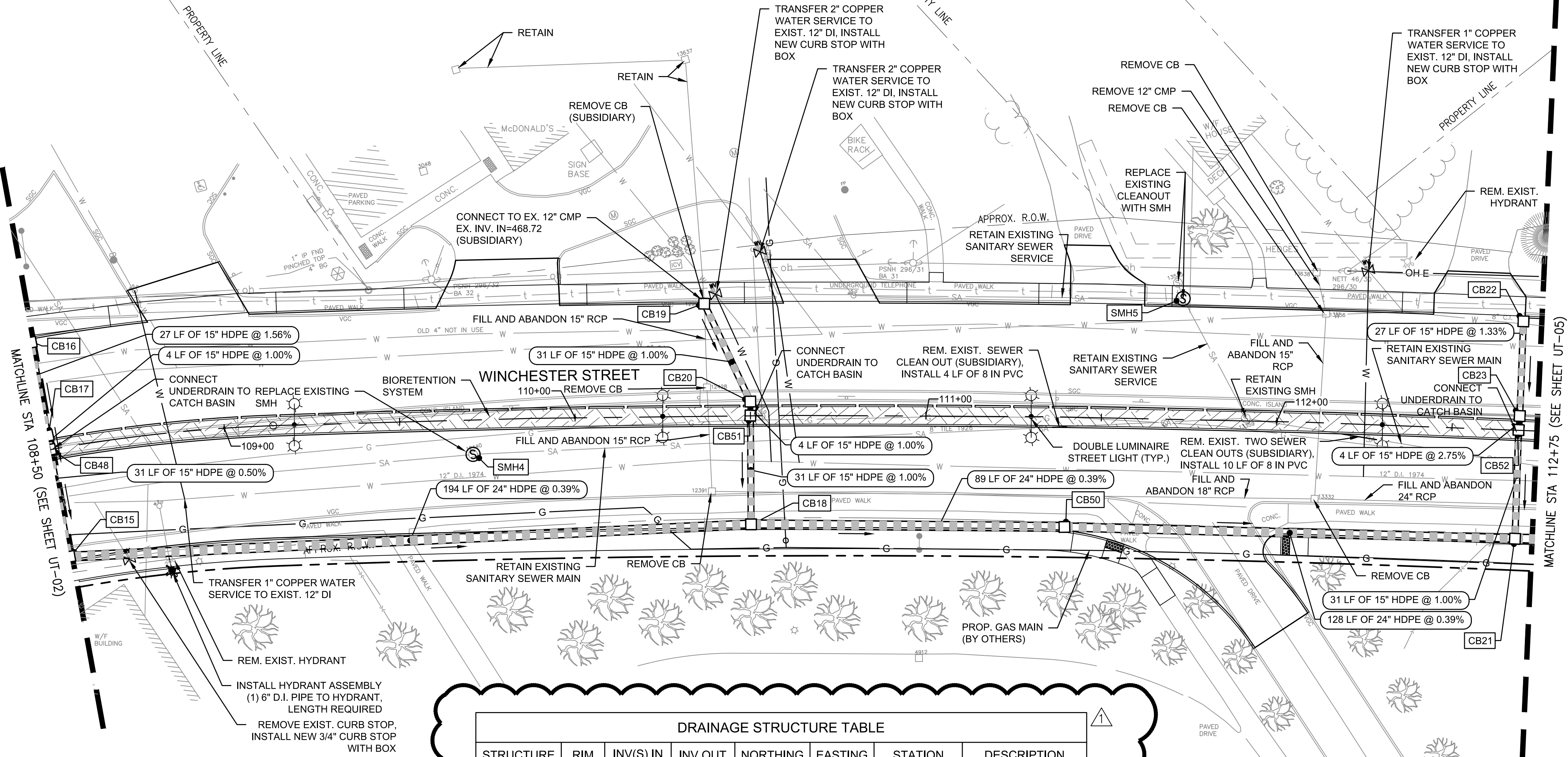
CB 12428
RIM=472.03
INV. 15" RCP(NW)=465.88
INV. 15" RCP(SE)=466.03

CB 12999
RIM=472.02
INV. 12" CMP(NW)=468.72
INV. 15" RCP(SE)=467.22
SUMP=464.32

CB 13332
RIM=470.89
INV. 15" RCP(NW)=465.23
INV. 18" RCP(SW)=465.25
INV. 24" RCP(NE)=465.09
SUMP=462.21

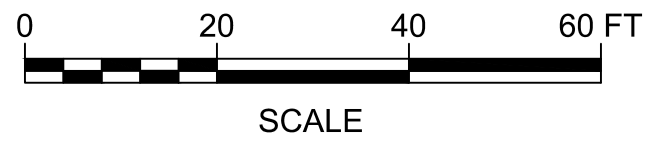
CB 13556
RIM=471.87
INV. 8" CMP(NW)=468.62
INV. 15" RCP(SE)=465.67
SUMP=462.87

CB 13639
RIM=471.43
INV. 15" (NE)=BLOCKED
INV. 12" CMP(SE)=468.63
SUMP=465.13



DRAINAGE STRUCTURE TABLE							
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION	DESCRIPTION
CB15	471.61	466.10(S) 467.85(NW)	465.69(NE)	155601.54	817544.95	108+50.0, 31.0 R	SLAB TOP
CB16	472.73		468.46(SE)	155631.24	817490.53	108+50.0, 31.0 L	SLAB TOP, DEEP SUMP
CB17	472.31	468.04(NW)	468.04(SE)	155618.30	817514.23	108+50.0, 4.0 L	SLAB TOP
CB18	471.33	466.59(NW) 464.93(SW)	464.93(NE)	155758.61	817659.57	110+50.0, 31.0 R	SLAB TOP
CB19	472.49		467.25(E)	155787.65	817602.21	110+37.1, 32.0 L	
CB20	472.03	466.94(W)	466.94(SE)	155780.40	817632.18	110+50.0, 4.0 L	
CB21	470.29	466.22(NW) 464.08(SW)	464.08(NE)	155925.64	817799.26	112+69.3, 31.0 R	SLAB TOP
CB22	471.27		467.00(SE)	155966.37	817752.51	112+69.0, 31.0 L	DEEP SUMP
CB23	470.99	466.64(NW)	466.64(SE)	155948.63	817772.87	112+69.1, 4.0 L	SLAB TOP
CB48	472.12	468.00(NW)	468.00(SE)	155616.39	817517.74	108+50.0, 0.0	
CB50	470.87	464.58(SW)	464.58(NE)	155827.71	817716.14	111+39.9, 31.4 R	
CB51	471.84	466.90(NW)	466.90(SE)	155777.91	817635.31	110+50.0, 0.0	
CB52	470.80	466.53(NW)	466.53(SE)	155945.87	817775.77	112+69.0, 0.0	

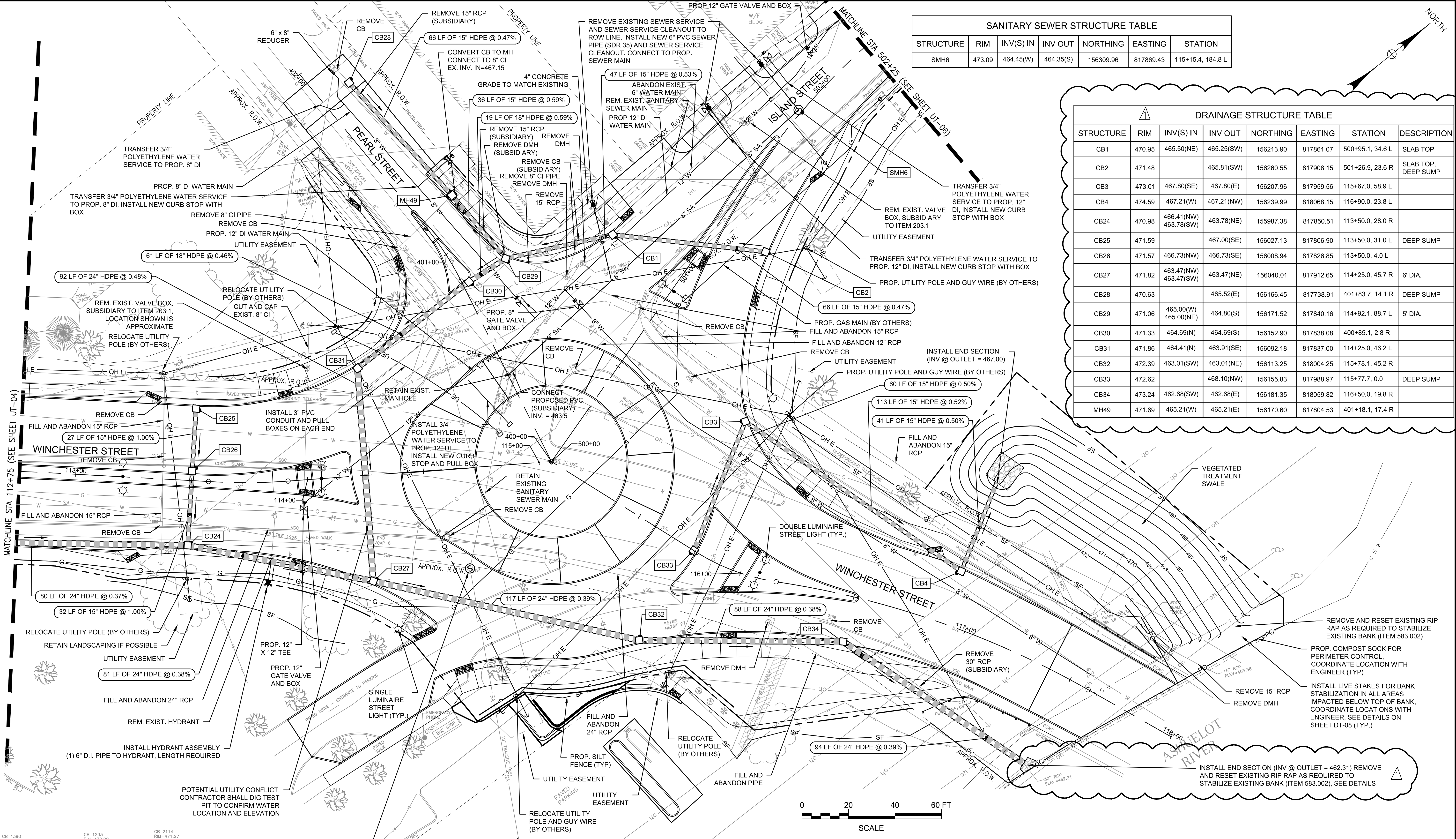
- NOTES:
1. ALL GAS VALVES TO BE ADJUSTED BY LIBERTY UTILITIES
 2. ALL WATER VALVES TO BE ADJUSTED BY CONTRACTOR
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				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION				
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP	UTILITY PLAN (SHEET 4 OF 6)				
REV	DATE	DESCRIPTION	BY					
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				SCALE: 1"=20'		DESIGN: BEP	UT-04 64 OF 142	
				DRAWN: MJF		PROJECT: 18022.01		
				CHECKED: EWM		DATE: SEPTEMBER 2020		

SANITARY SEWER STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION
SMH6	473.09	464.45(W)	464.35(S)	156309.96	817869.43	115+15.4, 184.8 L

DRAINAGE STRUCTURE TABLE							
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION	DESCRIPTION
CB1	470.95	465.50(N)	465.25(S)	156213.90	817861.07	500+95.1, 34.6 L	SLAB TOP
CB2	471.48		465.81(S)	156260.55	817908.15	501+26.9, 23.6 R	SLAB TOP, DEEP SUMP
CB3	473.01	467.80(SE)	467.80(E)	156207.96	817959.56	115+67.0, 58.9 L	
CB4	474.59	467.21(W)	467.21(N)	156239.99	818068.15	116+90.0, 23.8 L	
CB24	470.98	466.41(N)	463.78(S)	155987.38	817850.51	113+50.0, 28.0 R	
CB25	471.59		467.00(SE)	156027.13	817806.90	113+50.0, 31.0 L	DEEP SUMP
CB26	471.57	466.73(N)	466.73(SE)	156008.94	817826.85	113+50.0, 4.0 L	
CB27	471.82	463.47(N)	463.47(NE)	156040.01	817912.65	114+25.0, 45.7 R	6" DIA.
CB28	470.63		465.52(E)	156166.45	817738.91	401+83.7, 14.1 R	DEEP SUMP
CB29	471.06	465.00(W)	464.80(S)	156171.52	817840.16	114+92.1, 88.7 L	5" DIA.
CB30	471.33	464.69(N)	464.69(S)	156152.90	817838.08	400+85.1, 2.8 R	
CB31	471.86	464.41(N)	463.91(SE)	156092.18	817837.00	114+25.0, 46.2 L	
CB32	472.39	463.01(S)	463.01(NE)	156113.25	818004.25	115+78.1, 45.2 R	
CB33	472.62		468.10(N)	156155.83	817988.97	115+77.7, 0.0	DEEP SUMP
CB34	473.24	462.68(S)	462.68(E)	156181.35	818059.82	116+50.0, 19.8 R	
MH49	471.69	465.21(W)	465.21(E)	156170.60	817804.53	401+18.1, 17.4 R	



CB 1390 RIM=471.49 INV. 12" RCP(N)=467.49 SUMP=465.29	CB 1233 RIM=470.99 INV. 8" RCP(S)=467.19 SUMP=465.89	CB 2114 RIM=471.27 INV. 15" RCP(W)=465.07 INV. 15" RCP(E)=465.14 INV. 8" RCP(S)=467.15 SUMP=464.37
CB 1508 RIM=471.48 INV. 15" RCP(SE)=465.13 SUMP=462.13	CB 1244 RIM=471.36 INV. 15" RCP(W)=464.95 INV. 12" RCP(S)=465.95 INV. 15" RCP(E)=464.92 SUMP=464.56	CB 2159 RIM=472.75 INV. 30" RCP(W)=463.31 INV. 24" RCP(E)=463.38 SUMP=460.60
CB 1537 RIM=470.95 INV. 15" RCP(N)=464.97 INV. 15" RCP(SE)=464.94	CB 1258 RIM=471.78 INV. 12" RCP(N)=466.20 SUMP=465.63	SMH 1432 RIM=472.44 INV. 15" (NE)=461.09 INV. 15" (S)=461.01 INV. 8" (N)=465.20
CB 1670 RIM=470.74 INV. 24" RCP(SW)=463.90 INV. 24" RCP(NE)=463.91 SUMP=460.81	CB 2037 RIM=471.46 INV. 8" (N)=467.88 SUMP=466.68	SMH 1713 RIM=471.55 INV. 15" (NW)=460.98 INV. 6" RCP(SW)=461.15 INV. (SE)=460.92
CB 1686 RIM=470.23 INV. 15" RCP(SW)=464.60 INV. 24" RCP(SW)=464.97 INV. 24" RCP(NE)=464.58 SUMP=461.66	CB 2098 RIM=470.67 INV. 6" RCP(SW)=465.79 SUMP=464.77	

- NOTES:
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1

10/12/20

ALTERATION OF TERRAIN REVISIONS

BEP

REV

DATE

DESCRIPTION

BY



McFarland Johnson
53 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE 03301

CITY OF KEENE
KEENE, NEW HAMPSHIRE
WINCHESTER STREET
RECONSTRUCTION

UTILITY PLAN
(SHEET 5 OF 6)

SCALE: 1"=20'

DESIGN: BEP

DRAWN: MJF

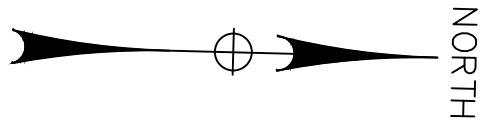
PROJECT: 18022.01

CHECKED: EWM

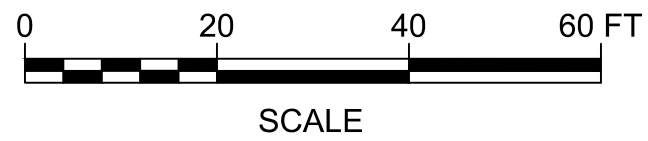
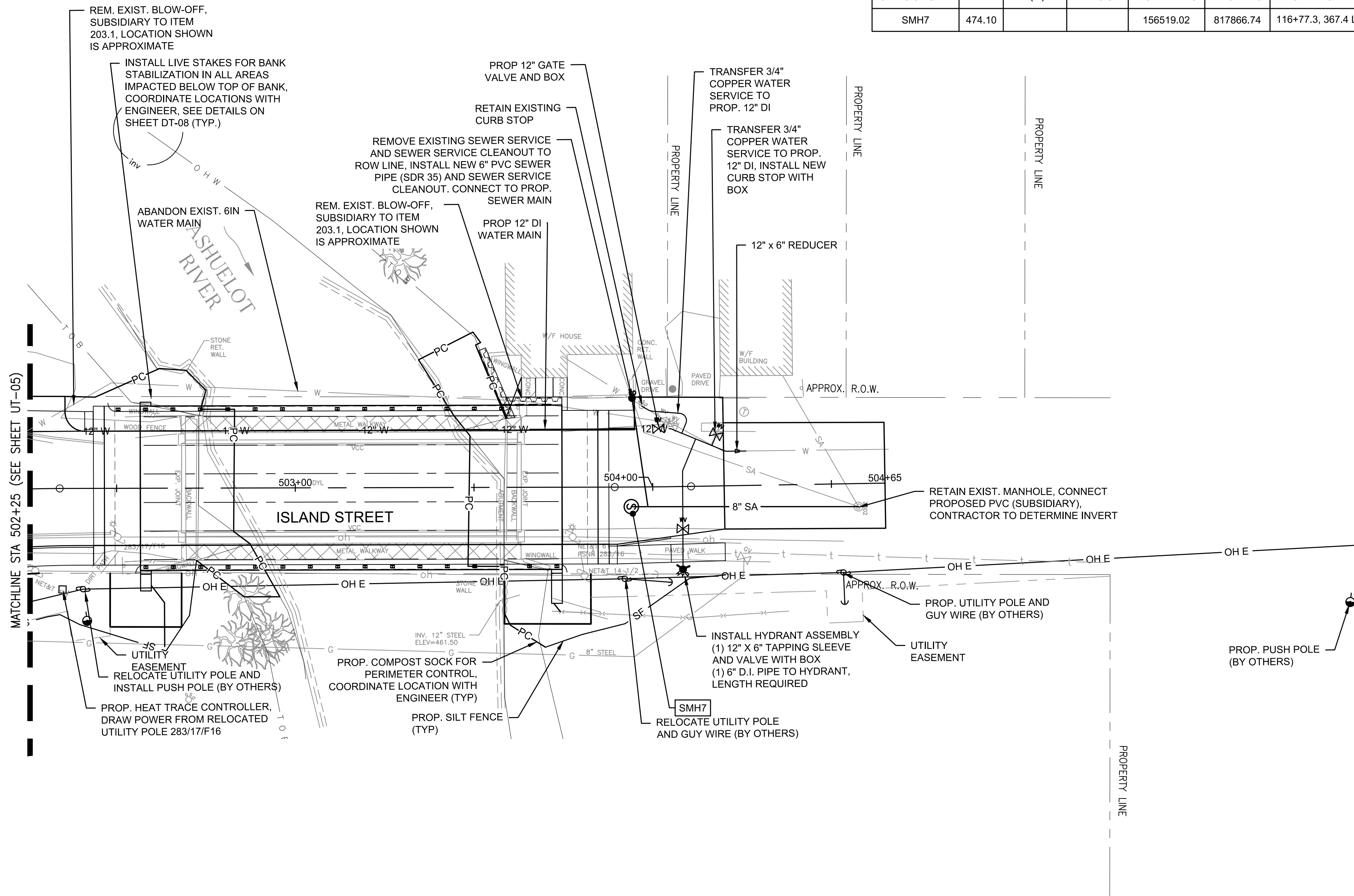
DATE: SEPTEMBER 2019

UT-05

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SANITARY SEWER STRUCTURE TABLE						
STRUCTURE	RIM	INV(S) IN	INV OUT	NORTHING	EASTING	STATION
SMH7	474.10			156519.02	817866.74	116+77.3, 367.4 L



- NOTES:
1. ALL GAS VALVES TO BE ADJUSTED BY LIBERTY UTILITIES
 2. ALL WATER VALVES TO BE ADJUSTED BY CONTRACTOR
 3. ALL TELEPHONE MANHOLES TO BE ADJUSTED BY CONTRACTOR
 4. ALL SEWER MANHOLES TO BE ADJUSTED BY CONTRACTOR

				CITY OF KEENE KEENE, NEW HAMPSHIRE WINCHESTER STREET RECONSTRUCTION			
1	10/12/20	ALTERATION OF TERRAIN REVISIONS	BEP	UTILITY PLAN (SHEET 6 OF 6)			
REV	DATE	DESCRIPTION	BY				
 McFarland Johnson 53 REGIONAL DRIVE CONCORD, NEW HAMPSHIRE 03301				SCALE: 1"=20'		DESIGN: BEP	UT-06 66 OF 142
				DRAWN: MJF		PROJECT: 18022.01	
				CHECKED: EWM		DATE: SEPTEMBER 2020	