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Architecture - Project Management - Interior Design

Project

MERRIMACK  
VALLEY  
REGIONAL  
TRANSIT  
AUTHORITY

FUEL TANK  
RELOCATION AND  
RETAINING WALL



123 RAILROAD AVE.  
HAVERHILL, MA 01835

Drawing Status  
FOR CONSTRUCTION

Issued On 7/16/2025

Sheet Contents

NOTES AND  
LEGEND

Project Number. 5728

Drawing No.

C-0

Sheet of

#### GENERAL NOTES:

- PRIOR TO THE PREPARATION OF BIDS AND/OR THE INITIATION OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN AND CAREFULLY EXAMINE THIS PLAN SET, RELATED CONSTRUCTION PLAN SETS FROM OTHER PROFESSIONAL DISCIPLINES, CONSTRUCTION SPECIFICATIONS, MANUFACTURERS INFORMATION AND ANY APPLICABLE PERMIT REQUIREMENTS/CONDITIONS OF APPROVAL FOR THE PROJECT.
- THE EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. DIG SAFE AND THE APPROPRIATE UTILITY COMPANIES SHALL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION.
- NOT ALL UTILITIES WERE ABLE TO BE LOCATED BY RECORD INFORMATION, SITE SURVEYS OR UTILITY LOCATOR SERVICES. THE DESIGN ENGINEER AND BASE PLAN SURVEYOR DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OR SUBSURFACE STRUCTURES WHICH ARE OMITTED OR INACCURATELY SHOWN. PRIOR TO THE INITIATION OF WORK, THE CONTRACTOR SHALL VERIFY THE LOCATION/ELEVATION OF EXISTING UTILITIES SHOWN ON THE PLAN.
- THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY DISCREPANCY BETWEEN THE LOCATION/ELEVATION OF ANY EXISTING UTILITIES SHOWN ON THE PLANS AND THAT WHICH IS FOUND IN THE FIELD.
- THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL LAND SURVEYOR TO PROVIDE LAYOUT & CONTROL FOR THE DEVELOPMENT OF THE SITE.
- ALL CONSTRUCTION UNDER AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONSTRUCTED TO WITHSTAND A DIRECT H20 DESIGN LOAD. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL UTILITY/SITE IMPROVEMENT AREAS UNDER LANDSCAPED/NON-TRAFFIC BEARING AREAS FROM TEMPORARY CONSTRUCTION LOADS DURING CONSTRUCTION.
- THE CONSTRUCTION SHOWN ON THESE PLANS REQUIRES AN ORDER OF CONDITIONS BE ISSUED BY THE CONSERVATION COMMISSION. THE CONTRACTOR SHALL OBTAIN A COPY OF SUCH ORDERS OF CONDITIONS PRIOR TO ANY SITE-RELATED DISTURBANCES AND SHALL COMPLY WITH APPROPRIATE CONDITIONS FOR CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL ADJACENT PROPERTY FROM DAMAGE. ALL DAMAGES BY THE CONTRACTOR OR SUBCONTRACTORS SHALL BE REPAIRED AT NO COST TO THE OWNER.
- THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING SURVEY MONUMENTS (BOUNDS, PINS, PIPES, DRILL HOLES, ETC.) THROUGHOUT ALL PHASES OF CONSTRUCTION. ANY DISTURBED MONUMENTS SHALL BE REPLACED BY A REGISTERED PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
- THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY CONTRADICTIONARY, INCOMPLETE OR MISLABELED INFORMATION SHOWN ON THE PLANS OR PLANS PREPARED BY OTHERS. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME FOR THE ENGINEER TO RESPOND/PROVIDE DIRECTION FOR THE PLAN DISCREPANCY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SHOP DRAWINGS OF PRODUCTS/MATERIALS TO THE ENGINEER AND/OR THE LOCAL APPROVING AUTHORITY AS REQUIRED IN THE CONSTRUCTION DOCUMENTS OR IF REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION OVER THE PRODUCT. ADEQUATE TIME SHALL BE ALLOWED FOR THE SHOP DRAWINGS TO BE REVIEWED AND RETURNED TO THE CONTRACTOR PRIOR TO ORDERING THE SPECIFIED PRODUCTS/MATERIALS.
- ALL SUPPLEMENTAL DATA SUBMITTED IN CONJUNCTION WITH THIS COMPREHENSIVE PERMIT APPLICATION AS REQUIRED IS HEREBY INCORPORATED AS PART OF THE PLAN SET.
- ALL PERMANENT BOUNDARY AND SURVEY MONUMENTS SHALL BE INSTALLED AFTER THE COMPLETION OF ALL HEAVY SITE WORK.
- NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF WITHIN THE LIMITS OF THE PROJECT. ALL WASTE, TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.
- UNLESS OTHERWISE SPECIFIED OR SHOWN, ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CITY'S DEPARTMENT OF PUBLIC WORKS STANDARDS. IF NOT SPECIFIED THEREIN, SUCH CONSTRUCTION SHALL THEN CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MDOT, FORMERLY MASSHIGHWAY) STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST VERSION.

#### SITE WORK NOTES:

- THE LIMITS OF WORK SHALL BE FIELD ESTABLISHED PRIOR TO INITIATION OF ANY CONSTRUCTION, SITE EXPLORATIONS OR EARTHEN DISTURBANCE.
- EROSION CONTROLS SHALL BE IMPLEMENTED PRIOR TO SITE CLEARING OR DISTURBANCE. SEE EROSION AND SEDIMENTATION CONTROL PLAN.
- EXCEPT FOR THE SETUP FOR ENTRY TO THE SITE, NO CONSTRUCTION OR CONTRACTOR'S VEHICLES SHALL IMPEDE ON-SITE BUS CIRCULATION UNLESS COORDINATED WITH MeVA, ADJACENT PROPERTY OWNERS, ALL CONSTRUCTION STAGING, STOCKPILE AND PARKING AREAS SHALL BE ONSITE.
- LOAM SHALL BE STOCKPILED FOR RE-USE ON THE SITE TO THE EXTENT PRACTICAL, SEE EROSION AND SEDIMENTATION CONTROL PLAN.
- NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF WITHIN THE LIMITS OF THE PROJECT. ALL WASTE, TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS. THE SITE SHALL BE KEPT IN A NEAT AND ORDERLY FASHION.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TRENCH OPERATIONS PERMIT PURSUANT TO THE REQUIREMENTS OF THE CITY AND 520 CMR 14.00 (AKA "JACKIE'S LAW").

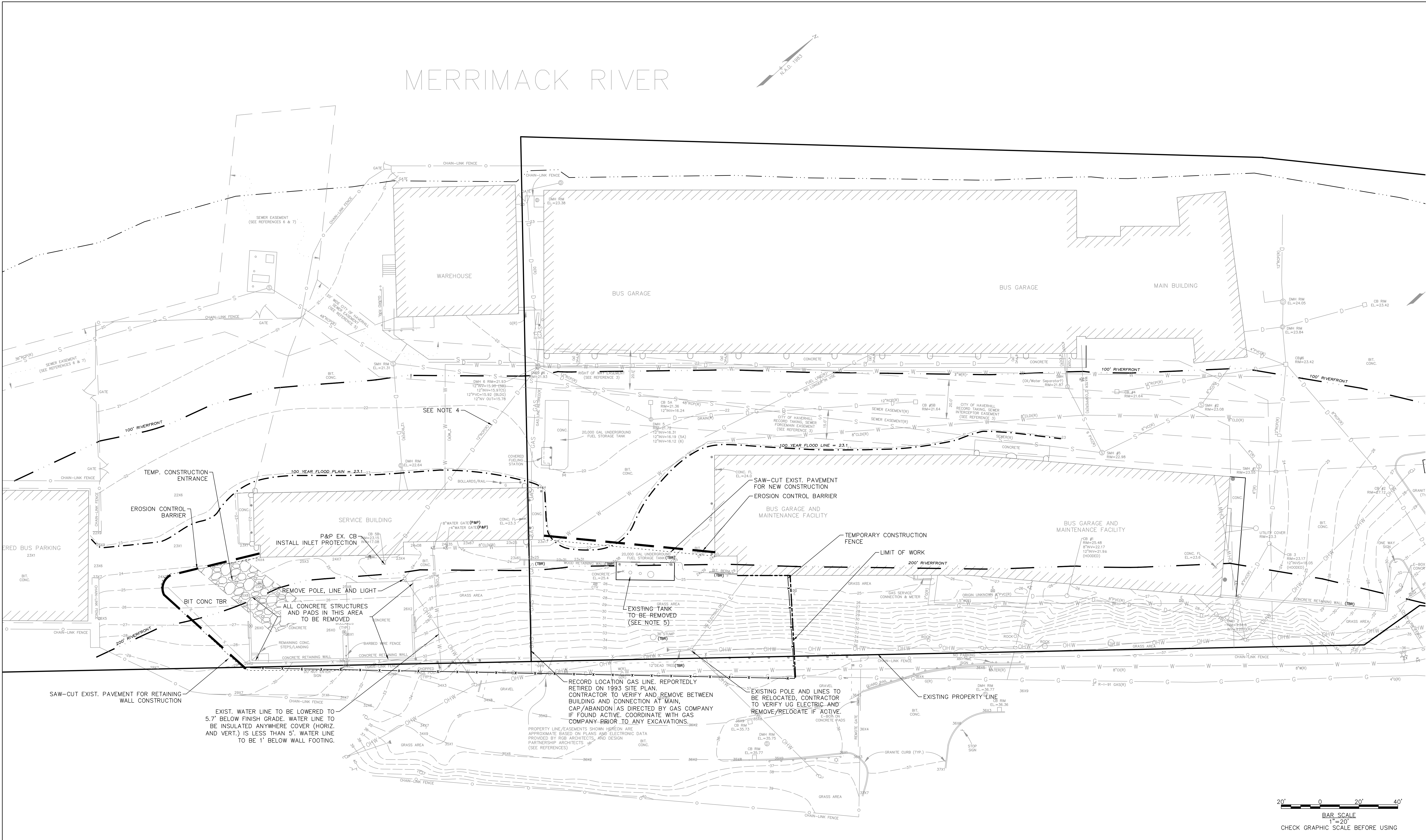
#### ABBREVIATIONS

ABBREVIATION	DEFINITION
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABR	ABBREVIATION
AR-1	ACCESSIBLE RAMP - TYPE 1
AR-2	ACCESSIBLE RAMP - TYPE 2
AR-3	ACCESSIBLE RAMP - TYPE 3
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B&B	BAIL & SURLAP
BE	BOTTOM CURB ELEVATION
BIT CONC.	BITUMINOUS CONCRETE
BLOC	BUILDING
BM	BENCHMARK
BR	BOTTOM RAMP ELEVATION
CAL	CALIPER
CB	CONCRETE BOUND
CF	CUBIC FOOT
CI	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CMC	CONCRETE
CTB	CATCH BASIN
CV	CUBIC YARD
DH	DRILL HOLE
DI	DUCTILE IRON PIPE
DICL	DUCTILE IRON CEMENT LINED PIPE
DIA	DIAMETER
DWH	DRAIN MANHOLE
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EK	EXISTING
EXT.	EXTERIOR
FDW	FOUNDATION
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FND	FOUND.
FSD	FIELD STONE BOUND
FT	FEET - LINEAR MEASURE
GAL	GALLON
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HP	HIGH POINT
HT	HEIGHT
I. PIN	IRON PIN
I. PIPE	IRON PIPE
ID	INSIDE DIAMETER
INV.	PIPE INVERT ELEVATION
LP	LOW POINT
MAX	MAXIMUM
MHB	MASS HIGHWAY BOUND
MIN	MINIMUM
MUTCD	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P&P	PRESERVE & PROTECT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE PIPE
RCP	ROUND CONCRETE PIPE
R & S	REMOVE & STOCKPILE ITEM REQUIRED
REQ'D	REQUIRED
SB	STONE BOUND
SMH	SEWER MANHOLE
SPR	SPREAD
S&S	STAKE & STONE
SSHB	STANDARD SPECIFICATIONS OF HIGHWAYS & BRIDGES, THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
STV	SLOPED TO VERTICAL CURB TRANSITION SEGMENT
TBM	TEMPORARY BENCH MARK TO BE REMOVED
TBR	TOP OF CURB ELEVATION
TC	TELEPHONE MANHOLE
TDC	TOP OF CONCRETE FOUNDATION ELEVATION
TP	TOP OF RAMP ELEVATION
TYP	TYPICAL FOR ALL ITEMS SHOWN
UP	UTILITY POLE
VGCS	VERTICAL GRANITE CURB TRANSITION SEGMENT

#### LEGEND

	EXISTING	PROPOSED
INDEX CONTOUR	-100	100
INTERMEDIATE CONTOUR	-99	99
SPOT GRADE	X 100.52	X 100.52
STONE WALL		
EDGE OF WOODS		
EDGE OF WATER BODY		
100 YEAR FLOOD LINE		
EDGE OF WETLAND		
25' BUFFER		
50' BUFFER		
75' BUFFER		
100' BUFFER		
WETLAND		
WETLAND FLAG		W7504
RIVERFRONT		
100' RIVER BUFFER		
200' RIVER BUFFER		
SILTATION BARRIER		
BUILDING SETBACK LINE		
WELL		
TREE		
FLAGPOLE		
BOLLARD		
BOUND		
DRILL HOLE		
IRON PIN		
BENCHMARK		
PERC TEST		
TEST PIT		
SOIL BORING		
EDGE OF GRAVEL		
EDGE OF WALK		
EXPANSION JOINT		
CONSTRUCTION JOINT		
EDGE OF PAVEMENT		
CAPE COD BERM		
BIT CONC. (TYPE 3)		
CONCRETE CURB		
VERT. GRANITE CURB		
SLOPED GRANITE CURB		
STOCKADE FENCE		
CHAIN LINK FENCE		
FENCE - OTHER		
FENCE GATE		
GUARD RAIL		
WOOD GUIDE RAIL		
ROOT BARRIER		
SGN POST		
FOUNDATION DRAIN		
ROOF DRAIN		
DRAIN LINE		
DRAIN MANHOLE		
CATCHBASIN		
FLARED END IN/OUT		
CLEANOUT		
IRRIGATION LINE		
FIRE PROTECTION LINE		
WATER LINE		
WATER VALVE		
FIRE HYDRANT		
WATER SHUTOFF		
THRUST BLOCK		
WATER PIPE REDUCER		
OVERHEAD WIRES		
UNDERGROUND WIRES		
GUY POLE		
UTILITY POLE		
GUY ANCHOR		
UTILITY BOX		
STREETLIGHT		
LAMP POST		
LIGHT POLE		
ELECTRIC MANHOLE		
TELEPHONE MANHOLE		
SEWER LINE		
SEWER FORCE MAIN		
LOW PRESSURE SEWER		
SEWER MANHOLE		
GAS LINE		
GAS VALVE		
HANDICAP SPACE		
NUMBER PARKING SPACES		12
BUILDING ENTRANCE		





- NOTES:
1. UTILITIES SHOWN ARE FROM RECORD INFORMATION ONLY AND MUST BE FIELD VERIFIED PRIOR TO ANY SITE DISTURBANCE.
  2. PROPERTY LINES ARE TAKEN FROM THE 1991 STAMPED SURVEY PLAN BY HANCOCK ASSOCIATES, INC.
  3. TOPOGRAPHY SHOWN IS THE RESULT OF A FIELD SURVEY BY PLACES ASSOCIATES, INC.
  4. PRIOR TO ORDERING MATERIALS OR INITIATING CONSTRUCTION THE EXISTING DRAIN LINE UNDER SERVICE BUILDING SHALL BE VIDEO TAPED FROM EX. CB#5 TO DMH#6 TO VERIFY ITS ABILITY AND SUITABILITY FOR REUSE. SUPPLY VIDEO TO DESIGN ENGINEER AND OWNER TO PERMIT SUFFICIENT TIME TO ADAPT DESIGN, IF NEEDED.
  5. THE REMOVAL OF EXISTING TANK SHALL BE PERFORMED ONLY AFTER OBTAINING ALL PERMITS TO DO SO. IT SHALL BE REMOVED ONLY UNDER THE SUPERVISION OF THE OWNER'S LSP.
  6. MAINTAIN BUS TRAFFIC ROUTE. COORDINATE ALTERNATIVE ROUTE WITH MEVA DURING INSTALLATION OF WALL, FENCE AND GUARDRAIL. TEMPORARY ADJUSTMENTS IN EROSION CONTROL AND CONSTRUCTION FENCE MAY BE NECESSARY.
  7. COORDINATE WITH OWNER AND IN COMPLIANCE WITH ALL ISSUED PERMITS FOR SOIL STOCKPILES. NO EXTERIOR MATERIALS SHALL BE STORED WITHIN 200' OF THE MERRIMACK RIVER. NO SOILS OR EXCAVATED MATERIALS (INCLUDING PAVEMENT) SHALL BE STORED INSIDE THE 100 YEAR FLOOD PLAIN.
  8. NO SITE CONSTRUCTION OR DISTURBANCE SHALL BE INITIATED IN ANY AREAS SUBJECT TO THE WETLANDS PROTECTION ACT WITHOUT THE PRIOR APPROVAL OF THE HAVERHILL CONSERVATION COMMISSION OR AGENT.

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Robinson Green Beretta Corporation  
7-16-25

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RGB architects

Architecture - Project Management - Interior Design

MERRIMACK VALLEY REGIONAL TRANSIT AUTHORITY

FUEL TANK RELOCATION AND RETAINING WALL

MEVA Merrimack Valley Transit

123 RAILROAD AVE.  
HAVERHILL, MA 01835

Drawing Status  
FOR CONSTRUCTION

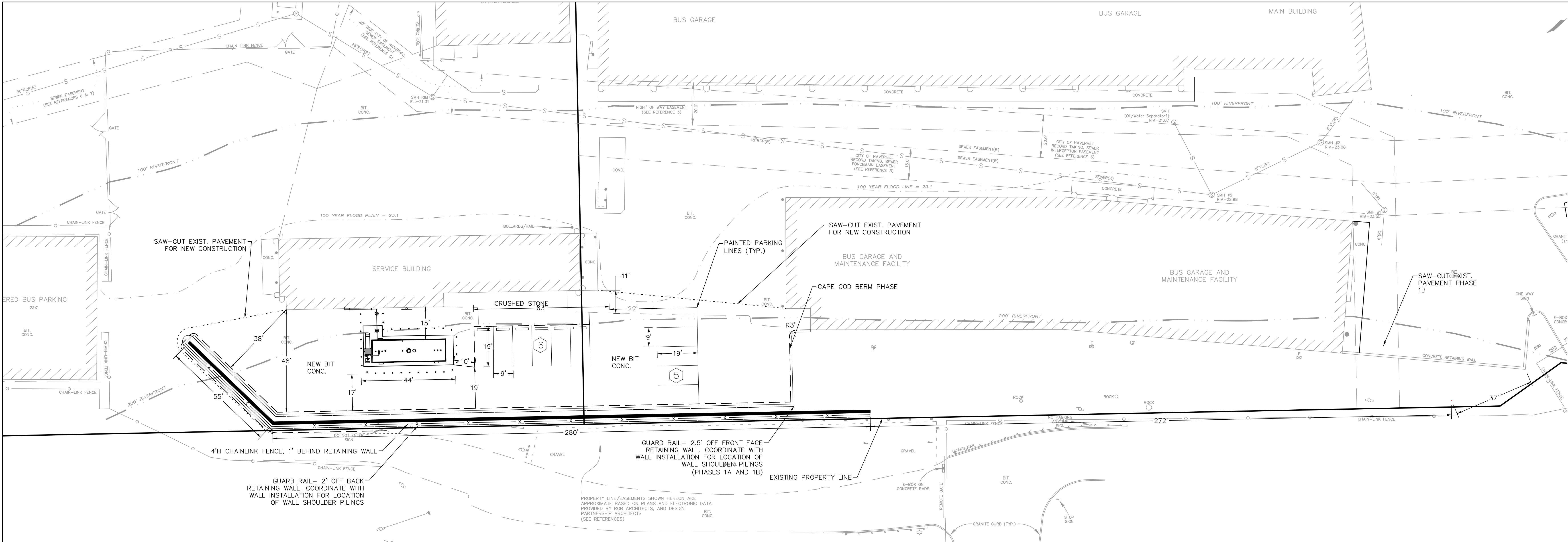
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Sheet Contents  
EXISTING CONDITIONS AND DEMOLITION PLAN  
Project Number. 6859

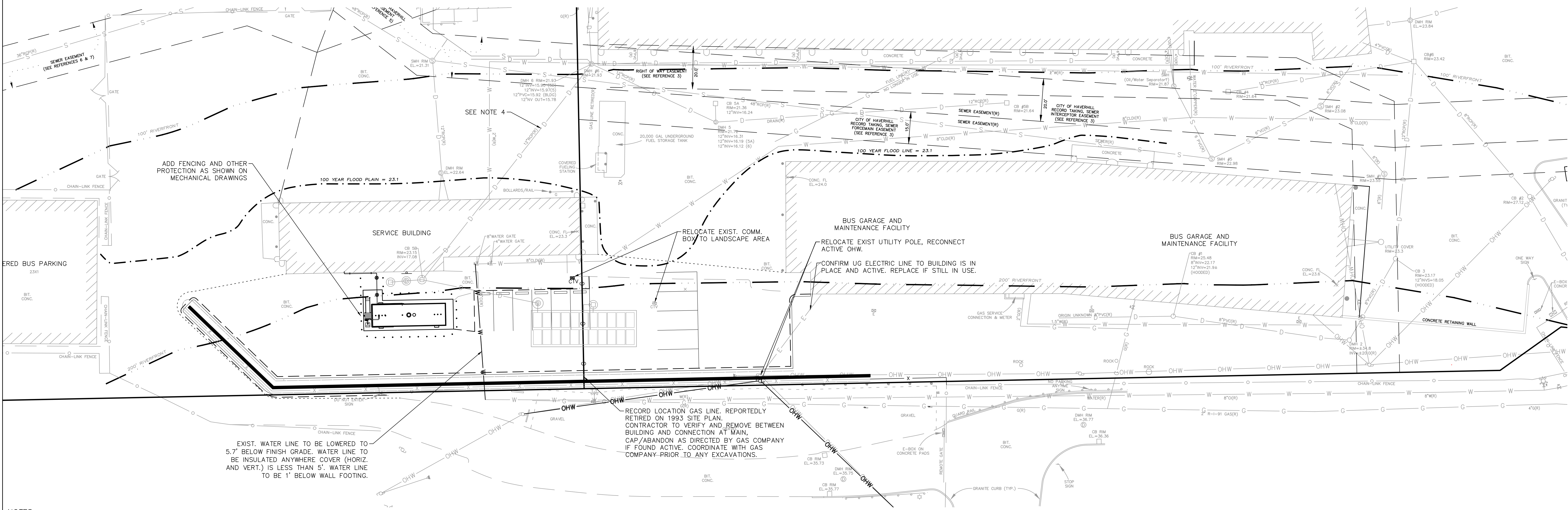
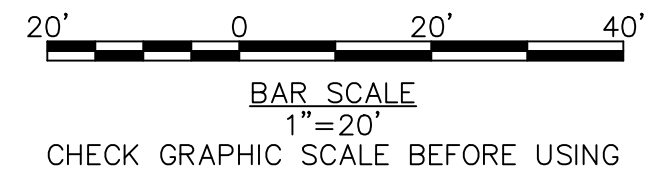
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LAYOUT PLAN



UTILITY PLAN



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  4. ALL CONSTRUCTION TO BE ON MEVA PROPERTY ONLY.

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Architecture - Project Management - Interior Design

Project

**MERRIMACK  
VALLEY  
REGIONAL  
TRANSIT  
AUTHORITY**

**FUEL TANK  
RELOCATION AND  
RETAINING WALL**



123 RAILROAD AVE.  
HAVERHILL, MA 01835

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**FOR CONSTRUCTION**

Issued On 7/16/2025

Sheet Contents

**LAYOUT AND  
UTILITY PLAN**

Project Number. 6859

Drawing No.

**C-2**

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Architecture - Project Management - Interior Design

Project

# MERRIMACK VALLEY REGIONAL TRANSIT AUTHORITY

## FUEL TANK RELOCATION AND RETAINING WALL



123 RAILROAD AVE.  
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Issued On 7/16/2025

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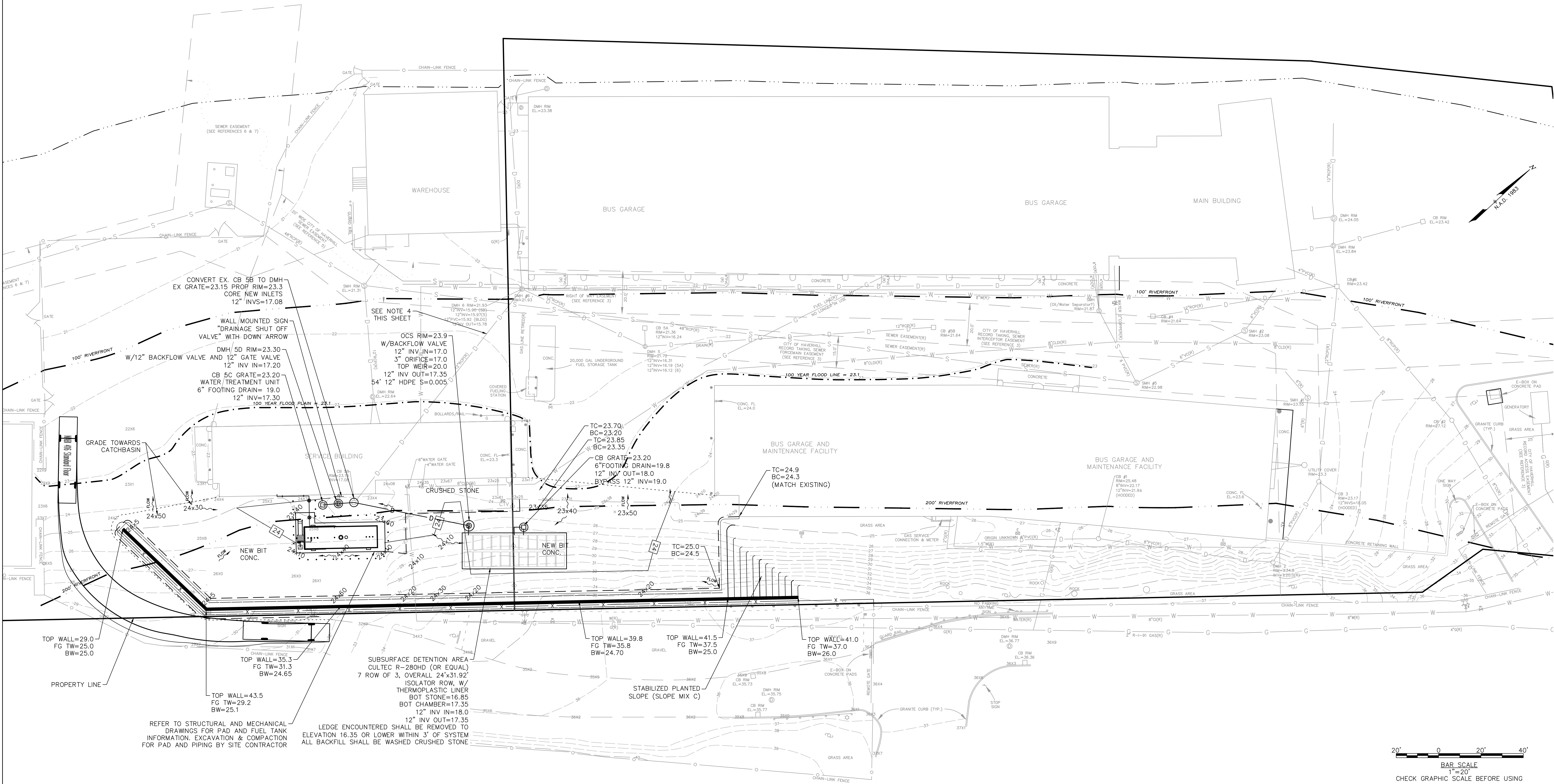
GRADING AND DRAINAGE PLAN

Project Number. 6859

Drawing No.

C-3

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### NOTES:

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3. ALL SURFACES NOT STABILIZED BY HARDSCAPE (PAVING, GRAVEL OR OTHER) SHALL BE LOAMED AND SEED.
4. PRIOR TO ORDERING MATERIALS OR INITIATING CONSTRUCTION, THE EXISTING DRAIN LINE UNDER SERVICE BUILDING SHALL BE VIDEO TAPED FROM EX. CB#5 TO DMH#6 TO VERIFY ITS ABILITY AND SUITABILITY FOR REUSE. SUPPLY VIDEO TO DESIGN ENGINEER AND OWNER TO PERMIT SUFFICIENT TIME TO ADAPT DESIGN, IF NEEDED.



# DRAINAGE SYSTEM OPERATIONS & MAINTENANCE PLAN

## STORM WATER COLLECTION SYSTEM:

THE STORMWATER COLLECTION SYSTEM SERVING THIS SITE IS INTENDED TO BOTH COLLECT STORM WATER RUNOFF ANTRIBUT TO PROPER TREATMENT AND ITS DISCHARGE. THIS SYSTEM COLLECTS RUNOFF GENERATED FROM THE SITE THROUGH THE USE OF STORMWATER BEST MANAGEMENT PRACTICES (BMP'S). WHEN THESE BASIC CONTROL MECHANISMS ARE FUNCTIONING PROPERLY THEY PROVIDE FOR A REDUCTION OF CONTAMINANTS AND DEBRIS ENTERING THE STORMWATER COLLECTION SYSTEMS, AND THEREFORE DOWNSTREAM RECEIVING WATERS,WETLANDS.

STORMWATER SYSTEMS RELY UPON PROPER MONITORING, OPERATIONS AND MAINTENANCE TO FUNCTION AS DESIGNED AND INTENDED. A PROGRAM OF MONITORING, OPERATIONS AND MAINTENANCE MUST BE ONGOING THROUGHOUT THE LIFE AND USE OF THE SITE, AND IS THE OWNER'S RESPONSIBILITY SOLEY. THESE ACTIVITIES, AS DESCRIBED BELOW, ARE TO BE INITIATED AFTER COMPLETION OF THE PROJECT AND ARE NOT RELATED TO THE CONSTRUCTION OF THE SITE, EXCEPT AS SPECIFICALLY PROVIDED. THIS PLAN IS SPECIFICALLY FOR SITE-RELATED ACTIVITIES, NOT ACTIVITIES WHICH ARE INTERIOR TO BUILDINGS, THOUGH THERE ARE NECESSARY IMPLICATIONS AND CORRELATIONS BETWEEN THE TWO.

## MONITORING:

THE DRAINAGE SYSTEMS ARE REQUIRED TO BE MONITORED BY THE DESIGNATED SYSTEM MANAGER, THE NAME, ADDRESS AND DAY AND NIGHT (OR EMERGENCY) TELEPHONE NUMBER OF THIS PERSON OR ENTITY SHALL BE PROVIDED TO THE CITY OF HAVERHILL PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE OF CONSTRUCTION. THIS INDIVIDUAL SHALL BE REQUIRED TO KEEP A LOG OF ALL REQUIRED INSPECTIONS, OBSERVATIONS AND MAINTENANCE ACTIVITIES. DRAINAGE SYSTEM COMPONENTS SHALL BE REFERRED TO BY SPECIFIC LOCATION OR THE DESIGN PLAN DESIGNATION. (E.G. CIB # 10) TO AVOID CONFUSION OR MISIDENTIFICATION THE LOG SHALL BE MADE AVAILABLE TO ANY MUNICIPAL OR STATE AGENCY HAVING JURISDICTION WITHIN TEN (10) DAYS OF A WRITTEN REQUEST BY THAT AGENCY.

## MONITORING FOR THIS SITE SHALL CONSIST OF THE FOLLOWING:

1. ALL CATCHBASINS SHALL BE INSPECTED TO ENSURE THEY ARE WATER-TIGHT (HOLDING WATER), HAVE ADEQUATE PUMP CAPACITY, ALL OIL/GAS TRAPS ARE IN-PLACE, ALL GRATES AND FRAMES ARE FREE FROM STRUCTURAL DAMAGE, AND ARE DRAINING FREELY. THIS MONITORING SHALL OCCUR AT A MINIMUM OF FOUR (4) MONTH INTERVALS (QUARTERLY).
2. ALL DRAINAGE MANHOLES SHALL BE INSPECTED TO ENSURE THAT THEY ARE WATER- TIGHT, ALL LIDS AND FRAMES ARE FREE FROM STRUCTURAL DAMAGE, ARE DRAINING FREELY AND ARE NOT PONDING WATER. THIS MONITORING SHALL OCCUR A MINIMUM OF ONCE PER YEAR.
3. ALL DRAINAGE SYSTEMS SHALL BE INSPECTED TO ENSURE THAT NO EROSION IS OCCURRING AT OUTLETS, ALL OUTLETS ARE FREDLOWING AND NO DAMAGE HAS OCCURRED AS PART OF SITE MAINTENANCE OR ACTIVITIES.
4. PROVIDE MAINTENANCE AND MONITORING OF THESE AND OTHER COMPONENTS AS SPECIFIED IN THE OPERATION AND MAINTENANCE MANUAL. (O&M).

## OPERATIONS:

1. GOOD HOUSE KEEPING AND MATERIAL MANAGEMENT REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF. A POLLUTION PREVENTION PLAN SHALL BE DEVELOPED WHICH SHALL INCLUDE THE FOLLOWING AT A MINIMUM:
  - 1.1. ALL MATERIALS STORED ON-SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
  - 1.2. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL. SUBSTANCES SHOULD NOT BE MIXED WITH ONE ANOTHER, UNLESS RECOMMENDED BY THE MANUFACTURER.
  - 1.3. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF A CONTAINER, THE SYSTEM'S MANAGER SHALL INSPECT THE SITE DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE, DURING ALL CONSTRUCTION PHASES.
  - 1.4. ORIGINAL MATERIALS LABELS AND MATERIAL SAFETY DATA SHEETS SHALL BE KEPT; THEY RETAIN IMPORTANT INFORMATION.
  - 1.5. ALL ONSITE VEHICLES AND PARKING AREAS SHALL BE REGULARLY MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO PREVENT LEAKAGE.
  - 1.6. PETROLEUM PRODUCTS SHALL BE STORED UNDER COVER AND SHALL BE IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED.
  - 1.7. FERTILIZERS SHALL ONLY BE USED IN THE MINIMUM AMOUNTS AS RECOMMENDED BY THE MANUFACTURER. THE CONTENTS OF ANY UNUSED FERTILIZER SHALL BE TRANSFERRED TO A CLEARLY LABELED, SEALABLE PLASTIC BIN, TO AVOID SPILLAGE.
  - 1.8. ALL PAINTS AND SOLVENTS SHALL BE STORED IN ORIGINAL MANUFACTURER'S CONTAINERS IN A COVERED LOCATION.
  - 1.9. THE USE OF PAINTS AND SOLVENTS SHALL, WHENEVER POSSIBLE, BE LIMITED TO SERVICE OR STORAGE BAYS AND NOT IN PARKING OR ACCESS WAYS THAT ARE TRIBUTARY TO THE DRAINAGE SYSTEM.
  - 1.10. THE USE OF PAINTS AND SOLVENTS SHALL, WHENEVER POSSIBLE, BE LIMITED TO SERVICE OR STORAGE BAYS AND NOT IN PARKING OR ACCESS WAYS THAT ARE TRIBUTARY TO THE DRAINAGE SYSTEM.
  - 1.11. THE USE OF PAINTS AND SOLVENTS SHALL, WHENEVER POSSIBLE, BE LIMITED TO SERVICE OR STORAGE BAYS AND NOT IN PARKING OR ACCESS WAYS THAT ARE TRIBUTARY TO THE DRAINAGE SYSTEM.
  - 1.12. THE USE OF PAINTS AND SOLVENTS SHALL, WHENEVER POSSIBLE, BE LIMITED TO SERVICE OR STORAGE BAYS AND NOT IN PARKING OR ACCESS WAYS THAT ARE TRIBUTARY TO THE DRAINAGE SYSTEM.
2. SPILL CONTROL PRACTICES:
  - 2.1. MANUFACTURER'S RECOMMENDED METHODS SHALL BE CLEARLY POSTED FOR SPILL, CLEANUP AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATIONS OF CLEANUP INFORMATION AND SUPPLIES.
  - 2.2. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT ON-SITE IN A DESIGNATED MATERIAL STORAGE AREA. EQUIPMENT WILL INCLUDE, BUT NOT BE LIMITED TO, BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, ABSORBENT MATERIALS, SAND, SAWDUST AND PLASTIC & METAL TRASH CONTAINERS SPECIFICALLY KEPT AND LABELED FOR THIS PURPOSE.
  - 2.3. ALL SPILLS WILL BE CLEANED-UP IMMEDIATELY AFTER DISCOVERY.
  - 2.4. SPILLS OF TOXIC OR HAZARDOUS MATERIAL OR NATURE WILL BE REPORTED TO THE APPROPRIATE STATE, LOCAL OR FEDERAL AGENCY, AS REQUIRED BY-LAW.
  - 2.5. THE SPILL PREVENTION PLAN WILL INCLUDE PROVISIONS TO ADAPT THE PLAN TO ENSURE THAT SPILLS WILL NOT REOCCUR, AND HOW TO CLEANUP THE SPILL IF THERE IS ANOTHER ONE.
3. SITE OPERATIONS AND DAILY USE SHALL CONSIDER THE ULTIMATE DISPOSITION OF STORMWATER AND OTHER SITE-GENERATED FORMS OF RUNOFF. THE WASHING OF VEHICLES SHALL BE LIMITED AREAS WITHIN THE BUILDING, AS THEY ARE SERVED BY THE FLOOR DRAIN SYSTEM. WASH WATER WITH ITS COMBINATION OF SOLVENTS, DETERGENTS AND OILS/GRASSES SHOULD NOT BE ALLOWED TO ENTER ANY PART OF THE ON-SITE DRAINAGE SYSTEM.
4. SNOW PLOWING:
  - 4.1. IN AREAS WHERE SNOW MELT WILL FLOW INTO THE ON-SITE DRAINAGE SYSTEMS, NO PLOWING OR STORAGE OF SNOW INTO WETLANDS.
  - 4.2. SALT USE SITE-WIDE SHALL BE APPLIED TO THE MINIMUM EXTENT POSSIBLE TO MAINTAIN SAFE CONDITIONS, AND ONLY IF NOT SPECIFICALLY EXCLUDED BY ANY SPECIAL CONDITIONS.

## MAINTENANCE:

1. PARKING AREAS, ROAD AND ACCESS WAYS AND GUTTERS SHALL BE SWEEPED CLEAN OF DEBRIS AND SUCH DOCUMENTS INCLUDE THE CONSTRUCTION SPECIFICATIONS, CONSTRUCTION PLANS AND ANY PERMITS ISSUED BY THE CITY OF HAVERHILL OR OTHER REGULATORY AGENCIES.
2. THIS IS A PERFORMANCE SPECIFICATION WHICH THE CONTRACTOR SHALL APPLY APPROPRIATE MEANS AND METHODS TO ACHIEVE.
3. ALL HYDROCARBON TRAPS SHALL BE CHECKED FOR PHYSICAL INTEGRITY AND SEALED IMMEDIATELY AFTER EACH CATCH BASIN CLEANING.
4. OIL ABSORBING "FLOWS" OR OTHER MEANS SHALL BE USED TO REMOVE ACCUMULATIONS OF HYDROCARBONS (OIL/GRASS) IN CATCHBASINS THAT ARE REGULARLY OBSERVED TO CONTAIN HYDROCARBONS, WHICH DO NOT EVAPORATE BETWEEN INSPECTIONS.
5. ALL BROKEN, LEAKING OR OTHERWISE DAMAGED STRUCTURES SHALL BE REPAIRED PROMPTLY UPON DISCOVERY. CATCH BASIN GRATES OR MANHOLE LIDS SHALL BE REPLACED WITH SIMILAR WEIGHT AND LOADING CHARACTERISTIC REPLACEMENT PARTS.
6. ALL EROSION SHALL BE REPAIRED.
7. THE REPLACEMENT OF ANY PIPE OR DRAINAGE STRUCTURE SHALL MATCH THE ORIGINAL DESIGN SPECIFICATIONS.
8. PROVIDE MAINTENANCE AND MONITORING AS SPECIFIED IN THE OPERATION AND MAINTENANCE MANUAL (O&M).

## NPDES GENERAL NOTES:

1. THIS PLAN IS INTENDED TO BE UTILIZED AS PART OF THE INFORMATION REQUIRED TOWARD MEETING THE NATIONAL STORM WATER POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) OF SECTION 402 OF THE FEDERAL CLEAN WATER ACT, THE CONSTRUCTION OF DRIVEWAYS, PARKING AREAS, BUILDINGS AND APPURTENANT STRUCTURES WILL RESULT IN MORE THAN 1 ACRE OF TOTAL DISTURBED AREA, REQUIRING THE SUBMITTAL OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS SITE.
2. IT IS ANTICIPATED THAT THE SITE AS DESIGNED WILL NOT MEET THE CRITERIA FOR A NPDES GENERAL PERMIT. THE SUBMISSION OF THE NPDES NOTICE OF INTENT (NPDES NOI), THIS PLAN AND SUPPORTING DOCUMENTATION MUST BE POSTMARKED A MINIMUM OF TWO (2) WEEKS PRIOR TO THE INITIATION OF ANY SITE, DISTURBANCE OR CONSTRUCTION, WHICH SHALL NOT COMMENCE UNTIL AN ORDER OF CONDITIONS HAS BEEN ISSUED.
3. A COPY OF THE NPDES SUBMITTAL AND THIS PLAN MUST BE KEPT ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE MADE AVAILABLE TO ALL INTERESTED PARTIES.
4. RECORDS MUST BE MAINTAINED BY THE PERMITTEE FOR A PERIOD OF THREE (3) YEARS FROM THE DATE OF STABILIZATION OF THE SITE. STABILIZATION OCCURS WHEN THE SITE HAS OVER 70% VEGETATIVE GROWTH AND/OR MECHANICAL STABILIZATION THROUGHOUT FOR ONE COMPLETE GROWING SEASON.
5. ALL INSPECTIONS SHALL BE CONDUCTED BY QUALIFIED PERSONNEL, WHO SHALL PRODUCE WRITTEN QUANTITATIVE AND QUALITATIVE REPORTS ON THE METHODS, SUITABILITY OF STRUCTURES AND THE GENERAL CONSTRUCTION.
6. INSPECTIONS ARE REQUIRED DURING SITE ALTERATIONS A MINIMUM OF ONCE EVERY SEVEN (7) DAYS WHILE SURFACES ARE UNSTABILIZED.
7. INSPECTIONS ARE REQUIRED WITHIN 24 HOURS OF STORMS WHICH PRODUCE 0.25" OF PRECIPITATION OR GREATER.
8. WHEN THE SITE IS FULLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT MONTHLY INTERVALS FOR A PERIOD OF 3 YEARS OR AS SPECIFIED IN THE O&M AND/OR SWPPP.

## INTENSE WEATHER PREPARATIONS:

1. THIS SECTION SPECIFICALLY APPLIES TO ANY RAINFALL EVENTS PREDICTED TO PRODUCE 2" OR MORE OF RAINFALL IN A 24 HOUR PERIOD OR MULTIPLE HIGH INTENSITY BACK TO BACK STORMS OR THE ISSUANCE OF A FLASH FLOOD WATCH.
2. THE CONTRACTOR SHALL HAVE ADDITIONAL EROSION CONTROL BARRIERS, STONE AND SAND BAGS OR SIMILAR MATERIALS TO CONTAIN AND DIRECT HIGH VELOCITY RAINFALL.
3. WHEN INTENSE RAINFALL IS PREDICTED, THE INLET SEDIMENT DEVICES (SILT-SAC OR SIMILAR), SHALL BE REMOVED FROM LOW POINTS IN THE ROAD OR CRITICAL CATCHBASINS NEEDED TO DIRECT RUNOFF TO THE APPROPRIATE STORMWATER BASIN. CLEAN INLET SEDIMENT DEVICES SHALL BE RE-INSTALLED IN THE CATCHBASINS AT THE END OF THE STORM EVENT AFTER ANY SEDIMENT HAS BEEN REMOVED FROM THE ROADWAY.
4. SAND BAGS OR EQUIVALENT SHALL BE INSTALLED IN AN ARC SHAPE, ADJACENT TO CATCHBASINS ON THE DOWN-GRADE SIDE TO CONTAIN RUNOFF AND MINIMIZE BYPASS FLOWS. ADDITIONAL SAND BAGS SHALL BE AVAILABLE ON SITE TO ALLOW MODIFICATIONS AS NEEDED DURING THE STORM EVENT TO CONTROL, AND CONTAIN RUNOFF.
5. TRENCHES SHALL BE GIVEN TO THE INSTALLATION OF CHECK DAMS ALONG SWALES OR DRIVEWAY SHOULDERS TO MINIMIZE EROSION VELOCITIES.
6. IF EXPOSED SLOPES ARE DIRECTLY ADJACENT TO PAVEMENT ON STEEP SLOPES, A 3" WIDE 3'-6"STONE STRIP SHALL BE INSTALLED ON THE SHOULDERS TO MINIMIZE EROSION POTENTIAL OF THE SLOPES, AS AN ALTERNATIVE, A 3" WIDE 18" DEEP BERM OF STUMP GRINDINGS MAY BE UTILIZED, WHERE THE ROADWAY IS IN FILL WITH SOFT SHOULDERS. SAND BAGS SHALL BE INSTALLED TO CONTAIN RUNOFF WITHIN THE ROADWAY AND DIRECT IT TO CATCHBASINS.
7. IF HILLS OR GULLIES HAVE OCCURRED DURING PREVIOUS RAINFALL EVENTS, CONSIDERATION SHALL BE GIVEN TO THE INSTALLATION OF RIP RAP IN THESE AREAS PRIOR TO THE INTENSE RAINFALL.
8. ALL STORMWATER BASINS SHALL BE EVALUATED FOR STABILITY AND VOLUME. IF THE PRE-STORM VOLUME OF WATER IN THE BASIN EXCEEDS ONE-HALF THE TOTAL DEPTH OF THE POND, THE WATER LEVEL SHALL BE REDUCED VIA PUMPING. PUMPING SHALL DISCHARGE TO A FILTER FABRIC BAG WHICH SHALL BE LOCATED IN THE CONTROLLED AREA, PREFERABLY PAVED AREA FLOWING TO A CATCH BASIN WHICH IS NOT TRIBUTARY TO THE BASIN.
9. A HIGH INTENSITY RAINFALL EVENT MAY REQUIRE THE CONTRACTOR TO BE PRESENT THROUGHOUT THE STORM TO ADJUST AND CONTROL ANY UNCONTROLLED EROSION TO MINIMIZE ANY BREAKTHROUGH FLOW.

## LOCAL PERMITTING:

1. THIS PLAN IS PART OF A SET OF DOCUMENTS WHICH INCLUDE LOCAL PERMITS, LOCAL REVIEW AND MODIFICATIONS TO PROPOSED SWPPP'S CREATED BY THE ABOVE LISTED CRITERIA.
2. CONTRACTORS SHALL ACCOMMODATE LOCAL REVIEW TIMELINES AS PART OF ALL SUBMISSIONS FOR SWPPP'S.

# EROSION & SEDIMENTATION CONTROL PLAN

## GENERAL:

1. THIS PLAN IS PART OF A SET OF DOCUMENTS THAT ARE TO BE VIEWED AND REVIEWED IN THEIR ENTIRETY. SUCH DOCUMENTS INCLUDE THE CONSTRUCTION SPECIFICATIONS, CONSTRUCTION PLANS AND ANY PERMITS ISSUED BY THE CITY OF HAVERHILL OR OTHER REGULATORY AGENCIES.
2. THIS IS A PERFORMANCE SPECIFICATION WHICH THE CONTRACTOR SHALL APPLY APPROPRIATE MEANS AND METHODS TO ACHIEVE.

## EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EROSION AND SEDIMENTATION ARE CONTROLLED. THIS PLAN SHALL BE ADAPTED TO FIT THE CONTRACTOR'S EQUIPMENT, WEATHER CONDITIONS, AND ANY ORDERS OF CONDITIONS ISSUED BY THE CITY OR ANY OTHER REGULATORY AGENCY.
2. THE MOST IMPORTANT ASPECTS OF CONTROLLING EROSION AND SEDIMENTATION ARE LIMITING THE EXTENT OF DISTURBANCE AND STABILIZING SURFACES AS SOON AS POSSIBLE, OF SECONDARY IMPORTANCE IN EROSION CONTROL IS LIMITING THE SIZE AND LENGTH OF THE TRIBUTARY DRAINAGE AREA WITHIN THE WORK SITE AND DRAINAGE STRUCTURES. THESE FUNDAMENTAL PRINCIPLES SHALL BE THE KEY FACTOR IN THE CONTRACTOR'S CONTROL OF EROSION ON THE SITE.
3. THE EXISTING SOIL CONDITIONS DURING THE POTENTIAL OF RUNOFF TO OFF-SITE AREAS WITH EROSION POTENTIAL.
4. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY DIVERSION SWALES AND SETTLING BASINS IN AREAS OF FUTURE CONSTRUCTION. CONSTRUCTION IS PERMITTED BEYOND THE LIMIT OF DISTURBANCE ONLY WHEN ADDITIONAL DRAINAGE MEASURES OR STABILIZATION MEASURES ARE NEEDED, AND SHALL BE SUBJECT TO APPROVAL BY THE TOWN OF COHASSET. PRIOR TO WORK OUTSIDE OF DESIGNATED LIMIT OF DISTURBANCE, THE LIMIT OF DISTURBANCE LINE SHALL BE THE EROSION CONTROL BARRIER.
5. ALL DISTURBED SURFACES SHALL BE STABILIZED A MINIMUM OF 14 DAYS AFTER CONSTRUCTION IN ANY PORTION OF THE SITE HAS CEASED OR IS TEMPORARILY HALTED UNLESS ADDITIONAL CONSTRUCTION IS INTENDED TO BE INITIATED WITHIN 21 DAYS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF ALL EROSION CONTROL DEVICES ON-SITE. ALL EROSION CONTROL DEVICES SHALL BE REGULARLY INSPECTED. ANY SEDIMENTS REMOVED FROM THE CONTROL DEVICES SHALL BE DISPOSED OF OUTSIDE OF THE 100' WETLANDS BUFFER ZONE. IF POSSIBLE, IT SHALL BE PLACED IN A STAGING AREA OR OFF-SITE.
7. AT NO TIME SHALL SILT-LADEN WATER BE ALLOWED TO ENTER SENSITIVE AREAS (WETLANDS, OFF-SITE AREAS AND DRAINAGE SYSTEMS). ANY RUNOFF FROM DISTURBED SURFACES SHALL BE DIRECTED THROUGH SETTLING BASINS AND EROSION CONTROL BARRIERS PRIOR TO ENTERING ANY SENSITIVE AREAS.

## PRELIMINARY SITE WORK:

1. MATERIAL REMOVED SHOULD BE STOCKPILED, SEPARATING THE TOPSOIL FOR FUTURE USE ON THE SITE. EROSION CONTROL SHALL BE UTILIZED ALONG THE DOWNSLOPE SIDE OF THE PILES IF THE PILES ARE TO REMAIN MORE THAN THREE WEEKS OR SUBJECT TO EROSION CONDITIONS SUCH AS INTENSE RAIN, WIND OR OTHER EXPOSURE.
2. STOCKPILES SHALL BE LOCATED AS SPECIFIED HEREIN AND AS REQUIRED. SHOULD ADDITIONAL AREAS BE NEEDED THEY SHALL BE LOCATED WITHIN THE LIMITS OF DISTURBANCE, IN AREAS OF MINIMAL IMPACT. IF A STOCKPILE IS LOCATED ON A SLOPE, THE RUNOFF SHALL BE DIRECTED AWAY FROM THE PILE.
3. IF INTENSE RAINFALL IS ANTICIPATED, THE INSTALLATION OF SUPPLEMENTAL STRAWBALE DIKES, SILT FENCES, OR ARMORED DIKES SHALL BE REQUIRED.
4. IF THE SITE CONSTRUCTION OCCURS AT ANY TIME OTHER THAN THE MAY - NOVEMBER CONSTRUCTION SEASON, THE SITE DRAINAGE SYSTEM SHALL BE INSTALLED, MAINTAINING HYDRAULIC CAPACITY, PRIOR TO ANY ROUGH GRADING IN THE BUFFER ZONE.
5. INLET SEDIMENT CONTROL DEVICES SHALL BE INSTALLED ON ALL CATCHBASINS ADJACENT TO THE LIMIT OF WORK, EVEN IF OUTSIDE THE DELINEATED LIMIT OF WORK. THE GENERAL CONTRACTOR SHALL MONITOR AND EMPTY AND/OR REPLACE ON AN AS NEEDED BASIS.

## DRAINAGE SYSTEM:

1. THE DRAINAGE SYSTEM SHALL BE INSTALLED FROM THE DOWNSTREAM END UP.
2. A SILT FENCE SHALL BE INSTALLED AT THE OUTFALL OF ALL TEMPORARY BASINS AND SWALES. IT SHALL REMAIN IN PLACE UNTIL ALL TRIBUTARY AREAS ARE STABILIZED.
3. WATER SHALL NOT BE ALLOWED TO ENTER PIPES FROM UN-STABILIZED SURFACES. SILT FENCE SHALL BE MONITORED, CLEANED & REPLACED AS NEEDED ON A REGULAR BASIS. SEE NPDES SWPPP REQUIREMENTS, IF APPLICABLE.
4. TRENCH EXCAVATIONS SHALL BE LIMITED TO THE MINIMUM LENGTH REQUIRED FOR DAILY PIPE INSTALLATION. ALL TRENCHES SHALL BE BACKFILLED AS SOON AS POSSIBLE. THE ENDS OF PIPES SHALL BE CLOSED NIGHTLY WITH PLYWOOD AND BACKER BOARD.
5. IF UNSTABLE AREAS ARE ENCOUNTERED DUE TO NATURAL SPRINGS OR GROUNDWATER BREAKOUT, INTERCEPT DRAINS SHALL BE INSTALLED TO DIRECT THE RUNOFF INTO THE DRAINAGE SYSTEM. SEE DETAILS.
6. IT IS IMPORTANT THAT THE BINDER COURSE, WITH BERMS, BE INSTALLED ON THE LIMITS OF THE PARKING LOT AND ACCESS ROADS AS SOON AS FEASIBLE AS THESE AREAS WILL FUNCTION AS A CONDUIT FOR RUNOFF.
7. ALL INFILTRATION AREAS TO BE PROTECTED BY EROSION CONTROL BARRIERS, AND OTHER METHODS, IF NECESSARY, SO THAT EROSION DOES NOT OCCUR IN AND SEDIMENT DOES NOT ENTER THESE AREAS.

FINISH GRADE-AS REQUIRED PER SITE PLAN

SLOPE 1:3

6" LOAM

EXTENDED 24" BEYOND TOE OF SLOPE & ANCHOR WITH EARTH STAPLES

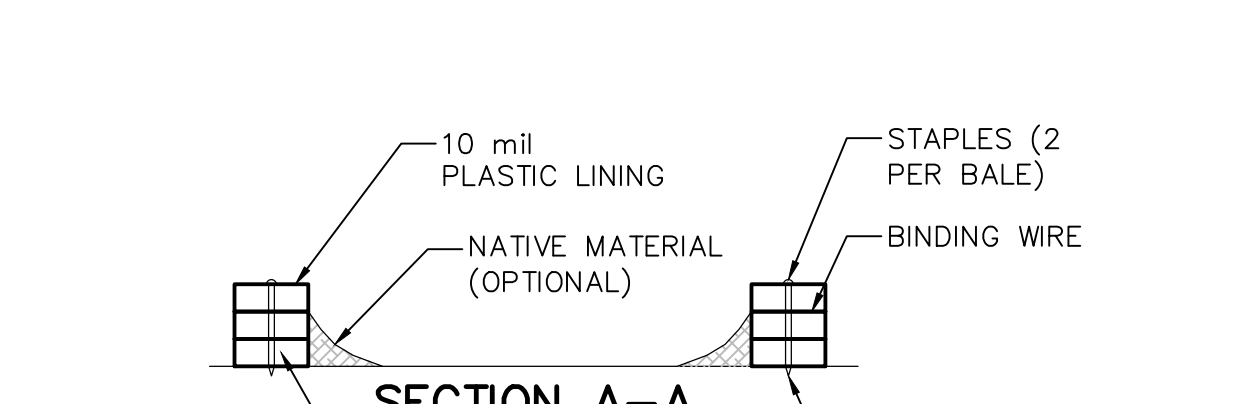
LANDSCAPE FABRIC- KEY AT TOP OF SLOPE, EARTH STAPLES AT 24", OVERLAP PER MANUFACTURER'S REQUIREMENTS

COMPACTED OR UNDISTURBED SUBGRADE

NOTE: FOR SOIL STABILIZED SLOPE 3:1 OR STEEPER

## STABILIZED SLOPE

NOT TO SCALE



SECTION A-A

STRAW BALE (TYP)

WOOD OR METAL STAPLES (2 PER BALE)

10 mil PLASTIC LINING

VARIES

9' MIN

ABOVE GRADE CONCRETE WASHOUT

NOT TO SCALE

CONTINUOUS BAND OF 3-12" CRUSHED, WASHED STONE BACKING BOTH SIDES OF TUBE

8" DIAMETER CORR FILLED SILTATION TUBE

PAVED SURFACE

PROTECTED AREA

FLOW

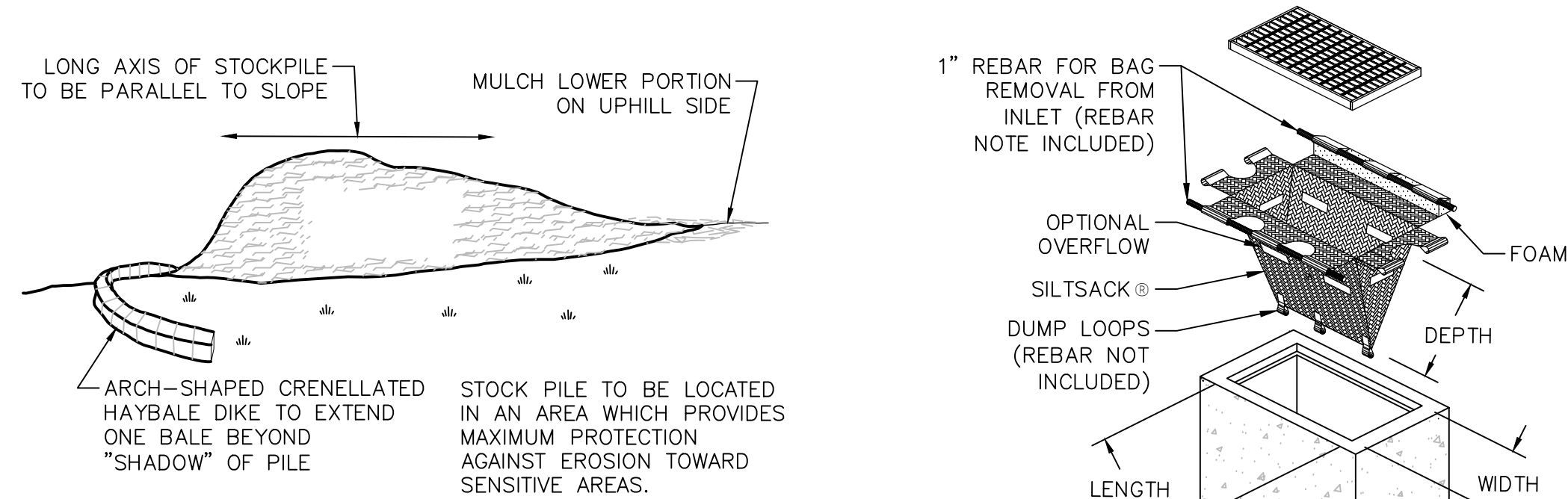
CONSTRUCTION AREA

NOTES

1. SILTATION BARRIER TO BE LOCATED AS SHOWN ON PLANS. INSTALL ON INSIDE OF TEMPORARY CONSTRUCTION FENCE
2. OVERLAP ENDS OF EACH LOG 24" AND TIE THE LOGS TOGETHER

## SILTATION BARRIER ON PAVEMENT

NOT TO SCALE



## TEMPORARY STOCKPILE

NOT TO SCALE

## PLAN VIEW

GRADE TO DIRECT FLOW TO BASIN

2x20 SET LEVEL

10'x5' + BASIN

1/2" - 3/4" STONE

STAKED HAYBALE BAFFLE

2x10

PROFILE VIEW

## TEMPORARY DEWATERING AREA

NOT TO SCALE

PUBLIC WAY

25' RADIUS FLARED END

CRUSHED STONE

50' MINIMUM LENGTH

12" MIN. WIDTH

20' MIN. WIDTH

20' MIN. WIDTH

20' MIN. WIDTH

20' MIN. WIDTH

20' MIN. WIDTH

20' MIN. WIDTH

## INLET SEDIMENT CONTROL DEVICE

NOT TO SCALE

1-1/2" SQ. WOOD POST 10' TO 4' ON CENTER\*

WRAP ATTACHMENT CORD AROUND POST TWICE

5' - 10'

PROTECTED AREA

2'-3'\*\*

BURY FABRIC 6" INTO EXISTING GROUND OR PLACE 4" OF 1/2" - 3/4" STONE OVER FABRIC AT BASE OF FENCE

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

2'-3'\*\*

## SILT FENCE DETAIL

NOT TO SCALE

- \* STEEL POST MAY BE SUBSTITUTED. DISTANCE BETWEEN POST TO VARY AS REQUIRED BY TRIBUTARY AREA: 10' FOR 100 SF/LF FENCE

- \*\* DEPT TO VARY WITH TRIBUTARY AREA: 6" FOR 500 SF/LF FENCE

- IF POST IS TO BE SET IN PEAT OR UNSTABLE SOILS, THEN 3' OR DEPTH NECESSARY TO PROVIDE A STABLE POST FOR LOADED FENCE CONDITIONS

## NOTES:

1. REPLACE STONE & ACCUMULATED DEBRIS, MUD & ENTRAPPED MATERIALS AS IS NECESSARY TO PREVENT TRACKING ON PUBLIC ROADWAYS.
2. REPLACE MONTHLY AS A MINIMUM REQUIREMENT.
3. DISPOSE OF STONE & ENTRAPPED MATERIALS IN A NON SENSITIVE AREA ON-SITE.
4. DO NOT REUSE STONE FOR SAME PURPOSE.
5. ALL TRAFFIC ENTERING / EXISTING SITE TO CROSS TEMPORARY CONSTRUCTION ENTRANCE TO REMOVE MUD FROM TIRES.

## TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE

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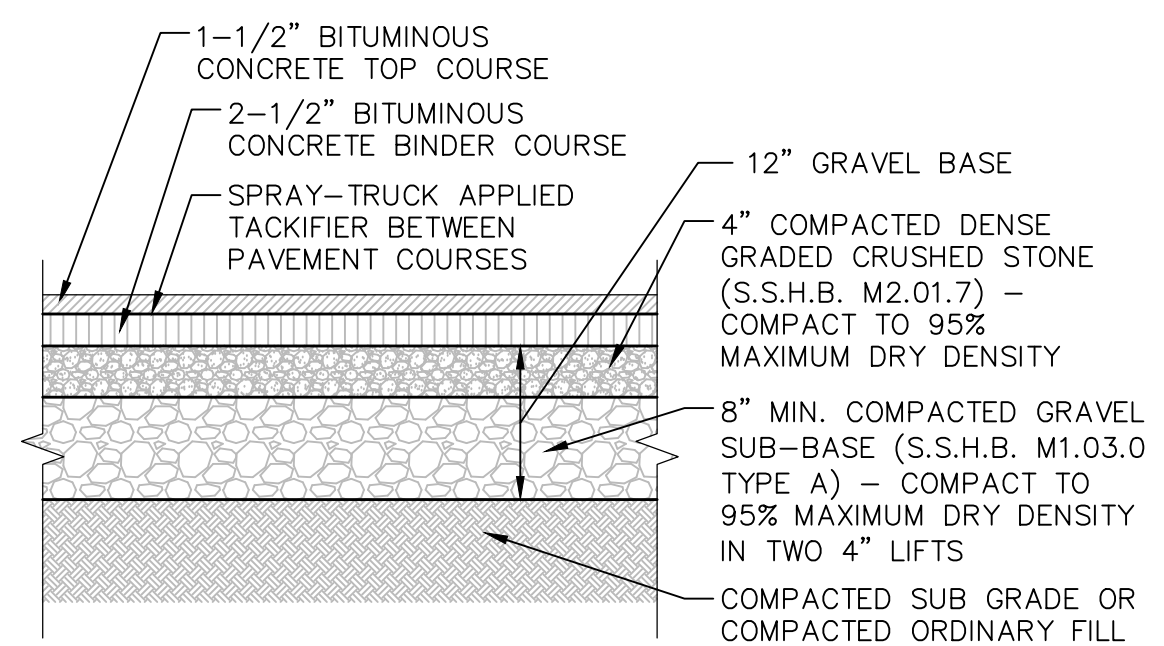
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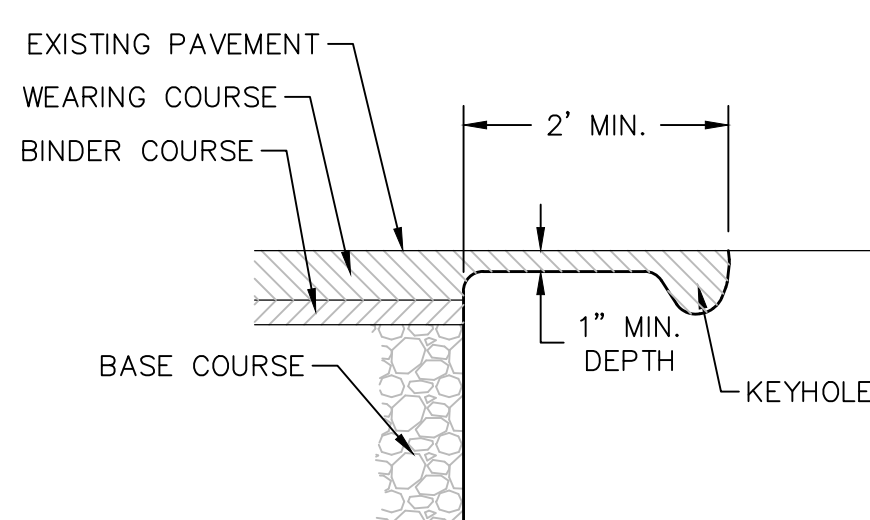
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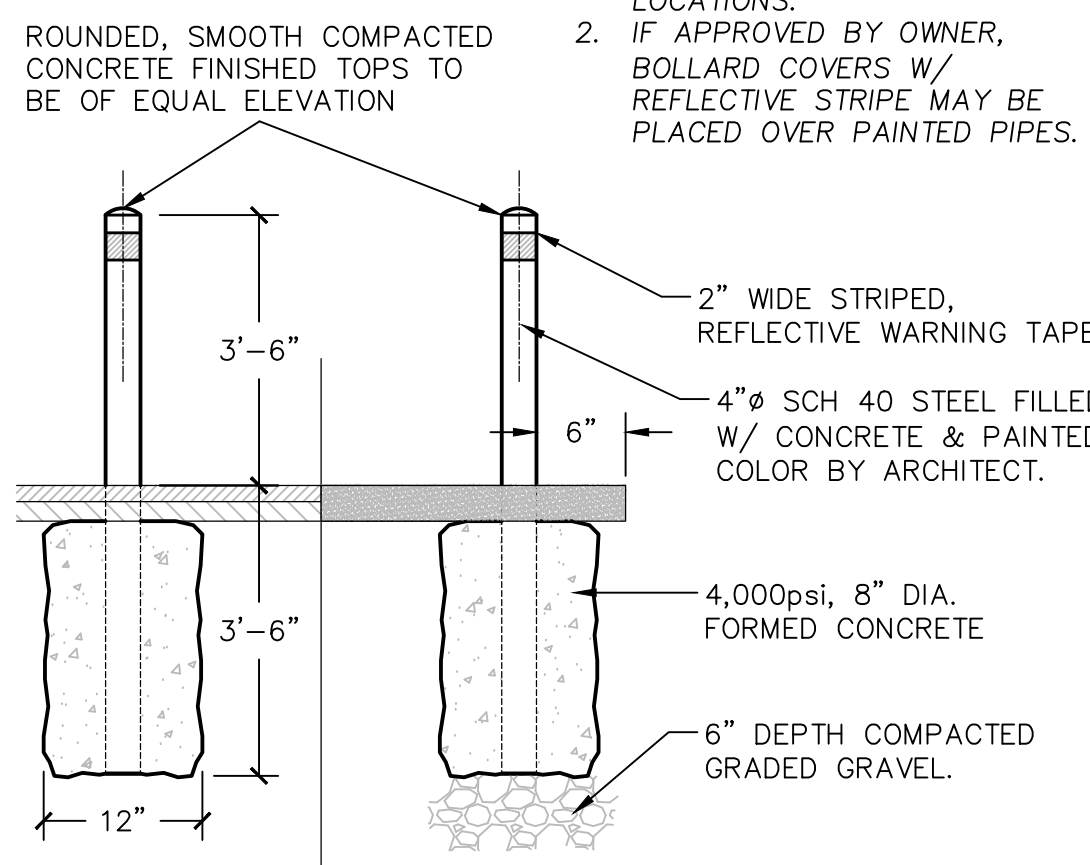
**TYPICAL PAVING DETAIL**  
NOT TO SCALE



**TRANSITION TO EXISTING PAVEMENT**  
NOT TO SCALE

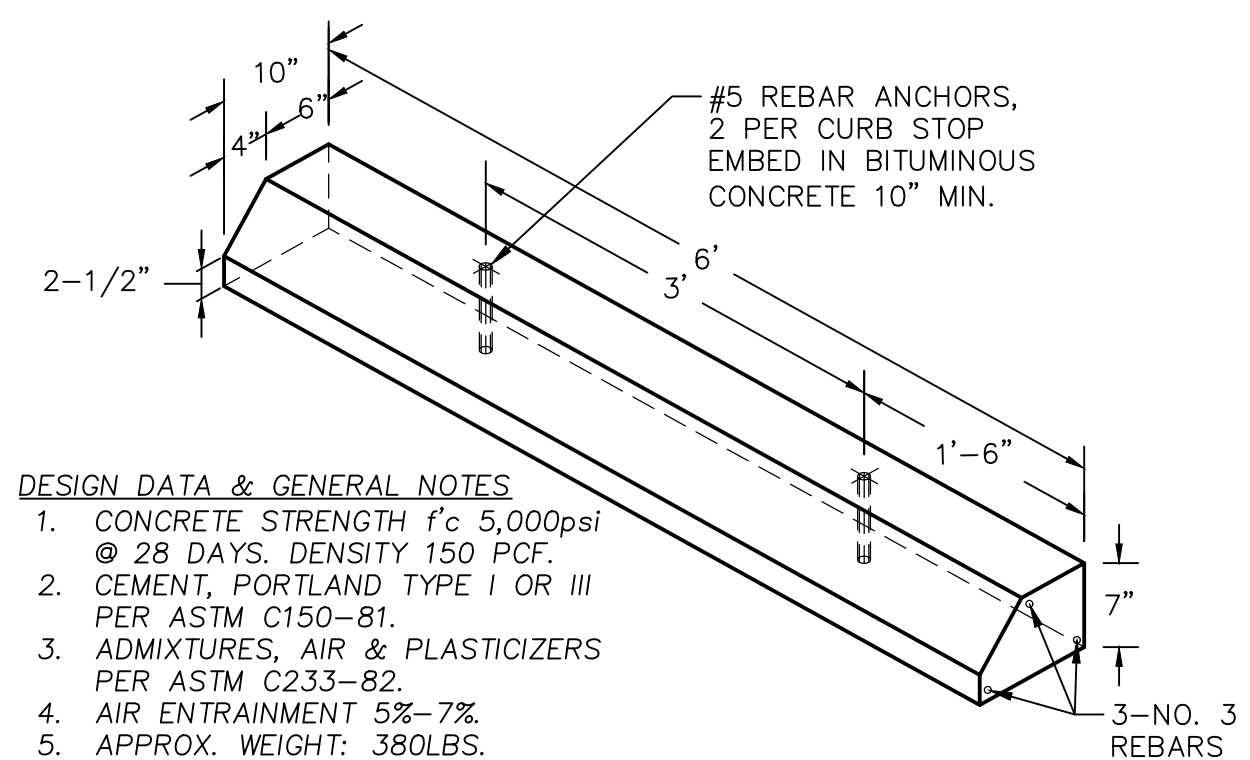
**CAPE COD BERM**  
NOT TO SCALE

- NOTE:  
1. SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR BOLLARD LOCATIONS.  
2. IF APPROVED BY OWNER, BOLLARD COVERS W/ REFLECTIVE STRIPE MAY BE PLACED OVER PAINTED PIPES.

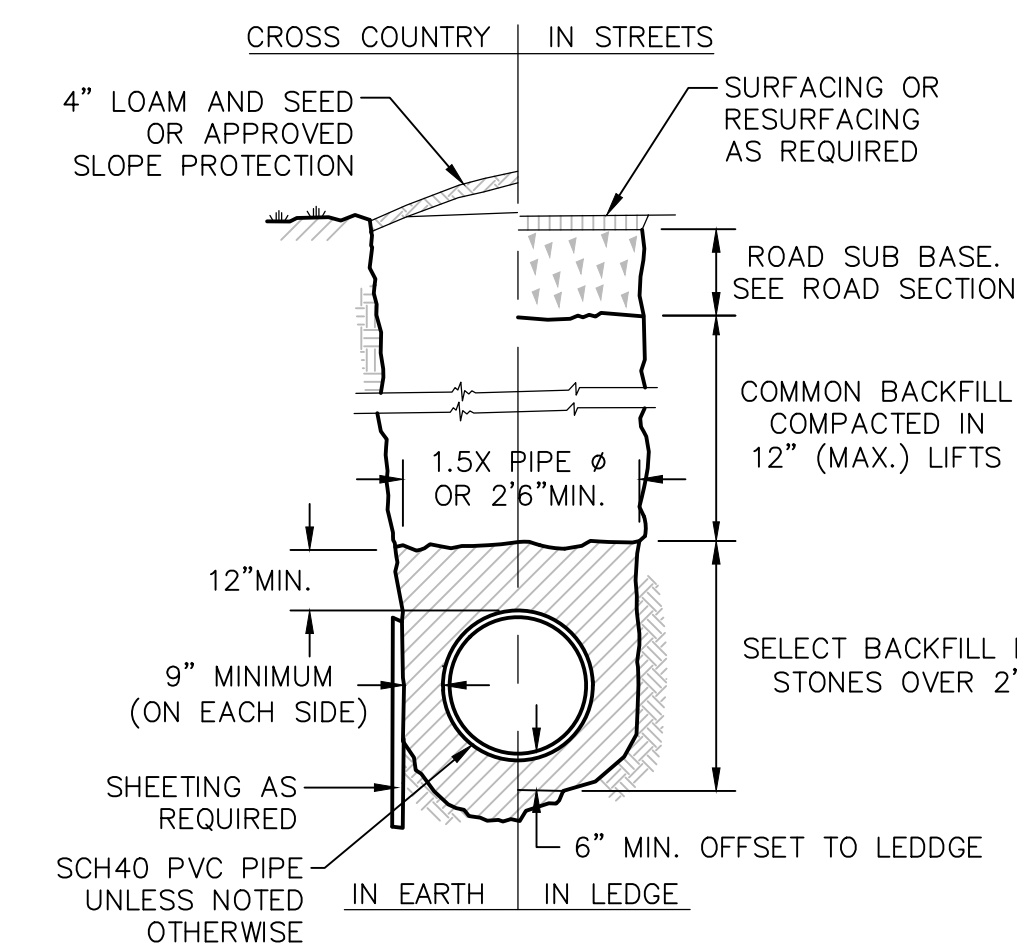


**BOLLARD GUARD**  
NOT TO SCALE

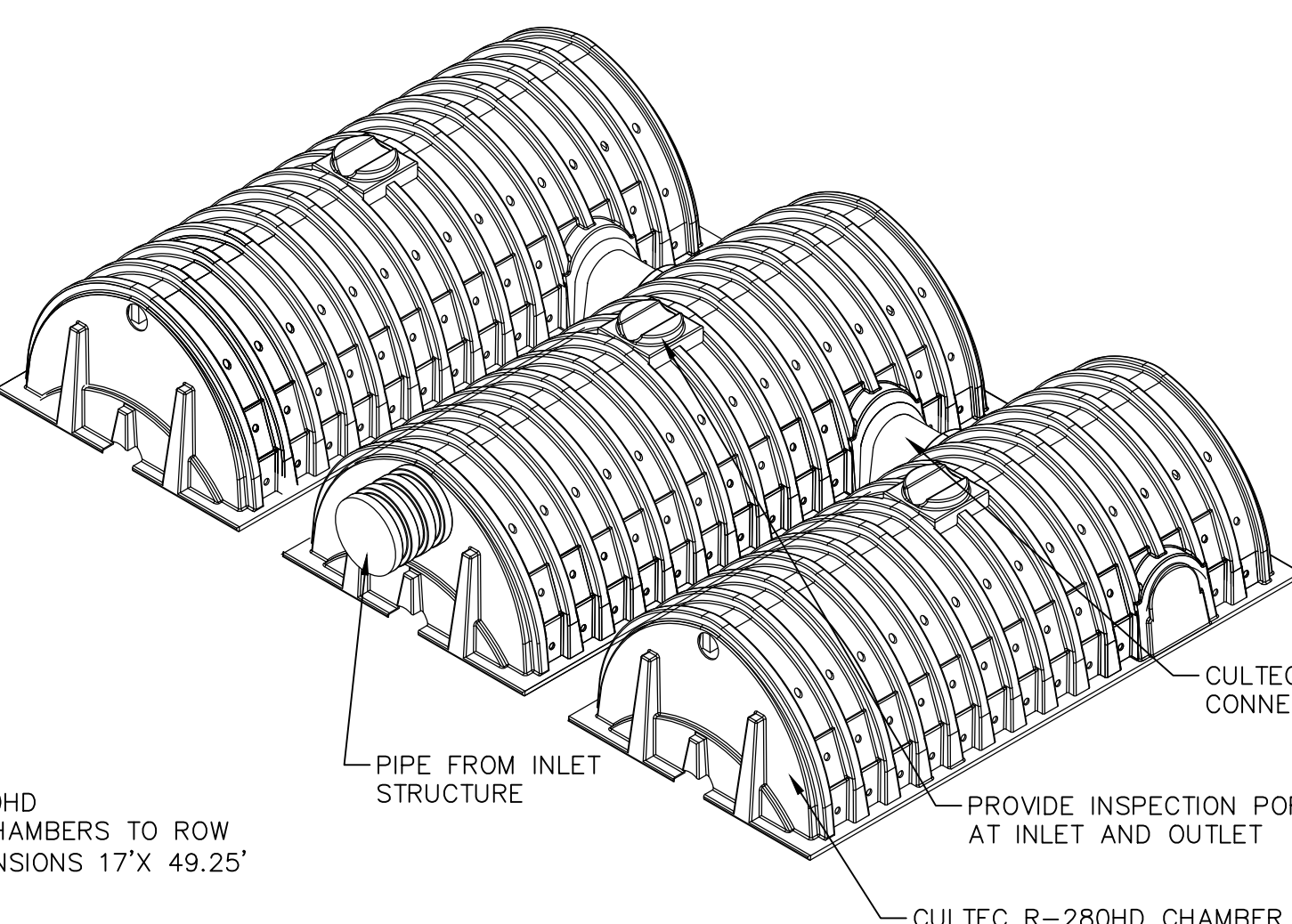
- DESIGN DATA & GENERAL NOTES  
1. CONCRETE STRENGTH  $f_c$  5,000psi @ 28 DAYS. DENSITY 150 PCF.  
2. CEMENT, PORTLAND TYPE I OR III PER ASTM C150-81.  
3. ADMIXTURES, AIR & PLASTICIZERS PER ASTM C233-82.  
4. AIR ENTRAINMENT 5%-7%.  
5. APPROX. WEIGHT: 380LBS.



**PARKING WHEEL STOP**  
NOT TO SCALE

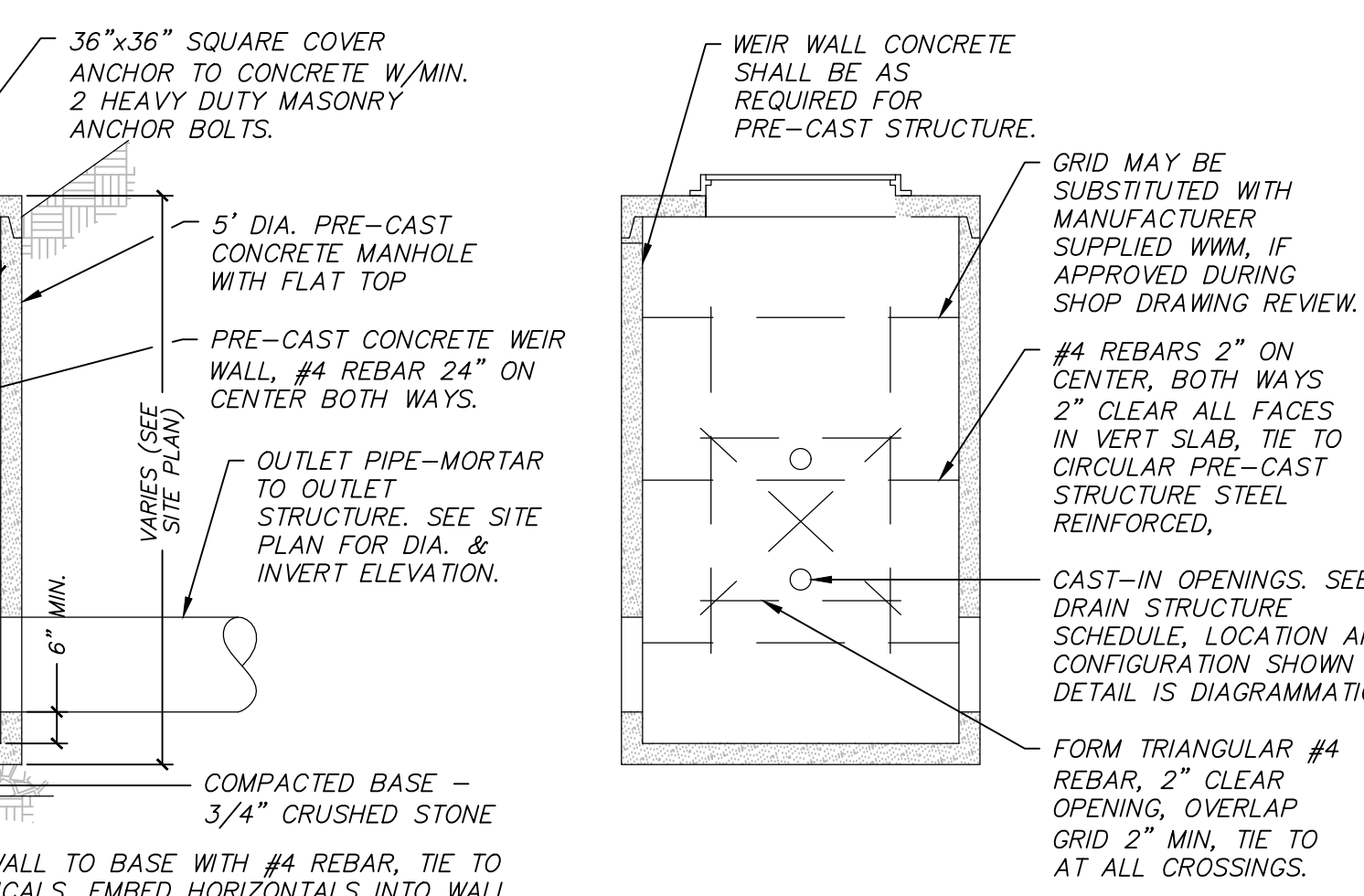


**DRAINAGE TRENCH**  
NOT TO SCALE



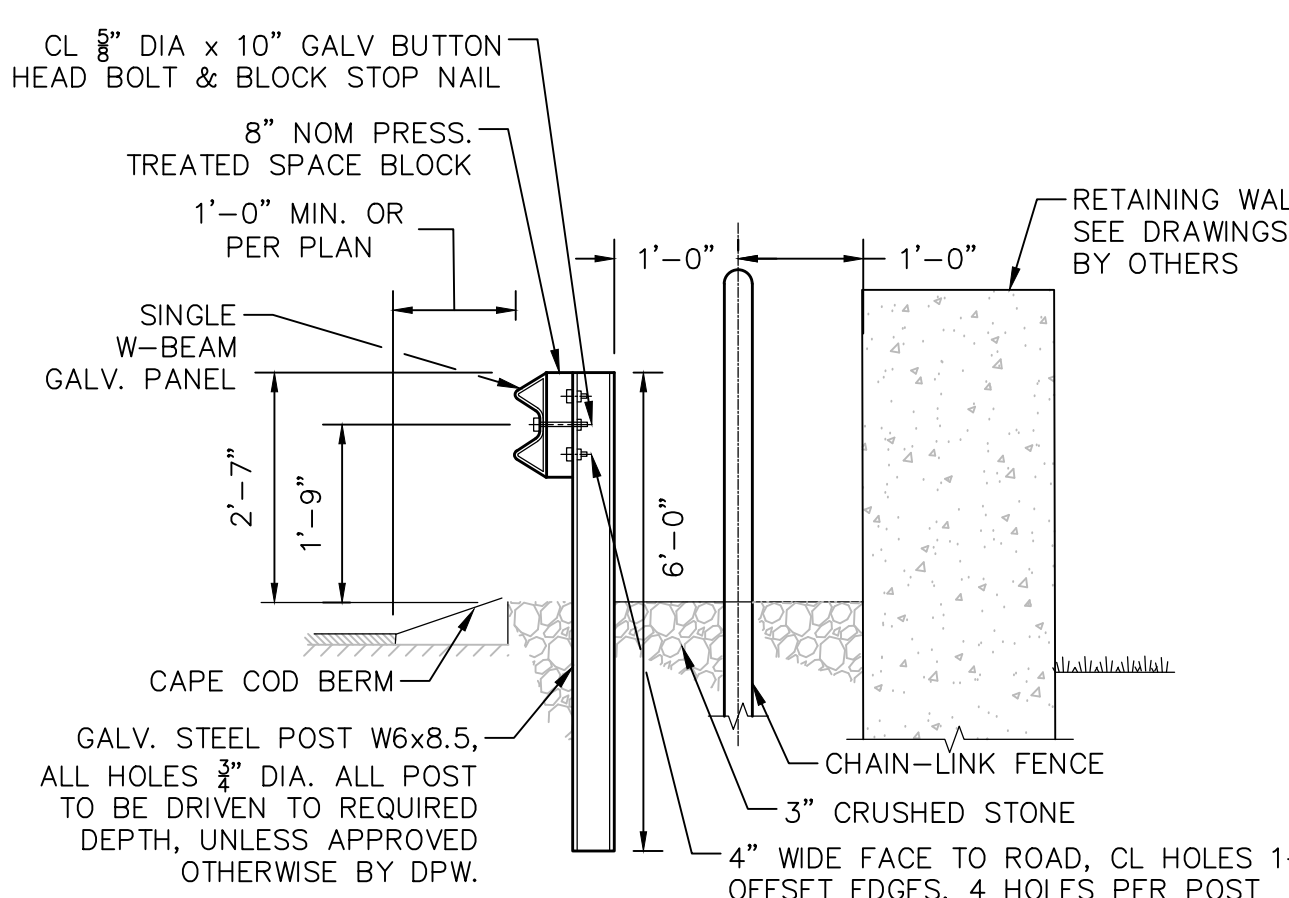
- NOTE:  
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE OUTLET WHERE APPLICABLE.  
2. THE COVER SHOULD BE POSITIONED OVER THE 4\"/>

**STORMSCOPE - WATER QUALITY SEPARATOR**  
NOT TO SCALE

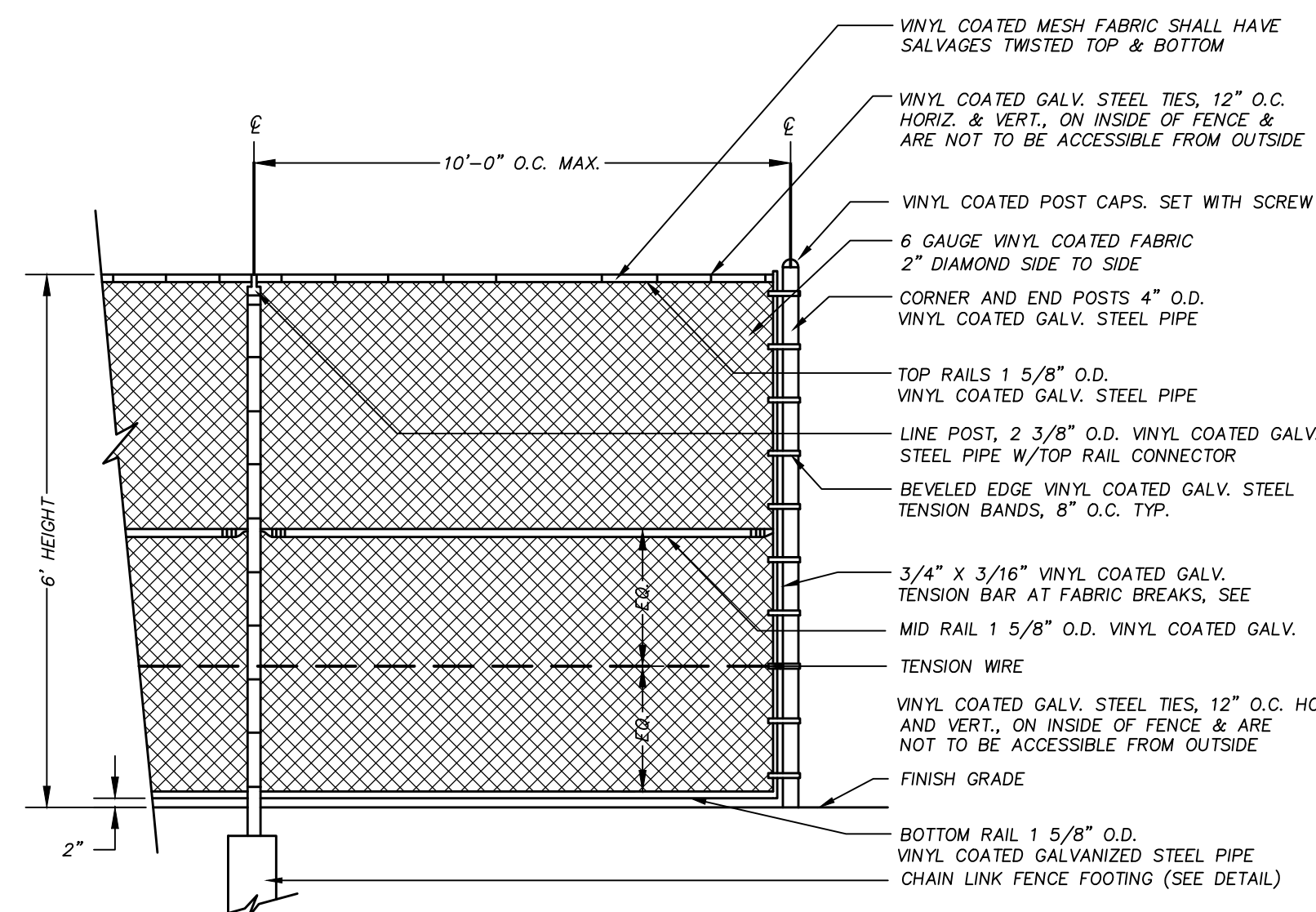


**OUTLET CONTROL STRUCTURE (OCS) WITH WEIR WALL**  
NOT TO SCALE

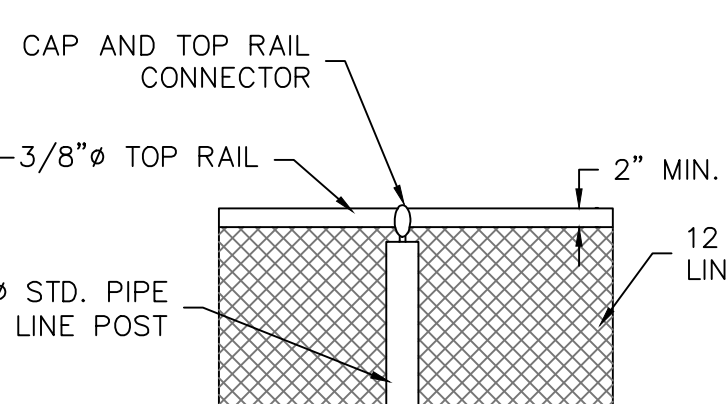
GUARDRAIL TO BE INSTALLED AND CONSTRUCTED WITH MATERIALS AS SPECIFIED IN COMMONWEALTH OF MASS. DEPT. OF TRANSPORTATION, "CONSTRUCTION STANDARDS" OCT 2017, SECTION 400 FOR STEEL POSTS AND W-BEAM PANEL, ONE SIDED POST & OFFSET BLOCK DETAILS SHEET 400.1.4 MOUNTING HEIGHTS SHEET 400.1.5



**STEEL BEAM GUARDRAIL**  
NOT TO SCALE

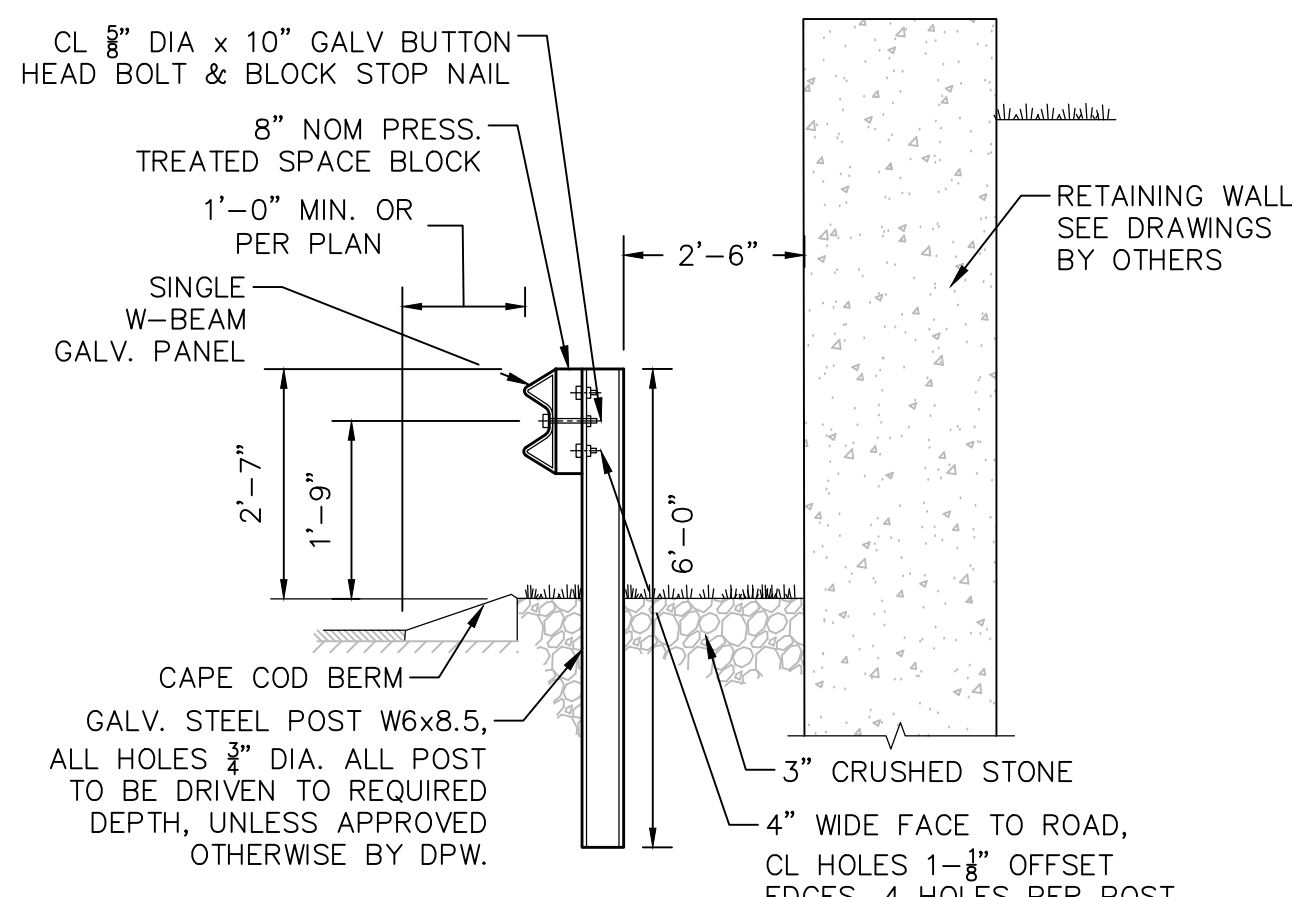


- NOTES:  
1. TOPS & BOTTOMS OF ALL FABRIC TO BE TIED. ALL FENCE FABRIC SHALL BE VINYL-COATED GALVANIZED STEEL AS PER SPEC. ALL POSTS AND HARDWARE TO BE VINYL-COATED GALVANIZED STEEL AS PER SPEC. VINYL COATING TO BE BLACK.  
2. PROVIDE 4\"/>

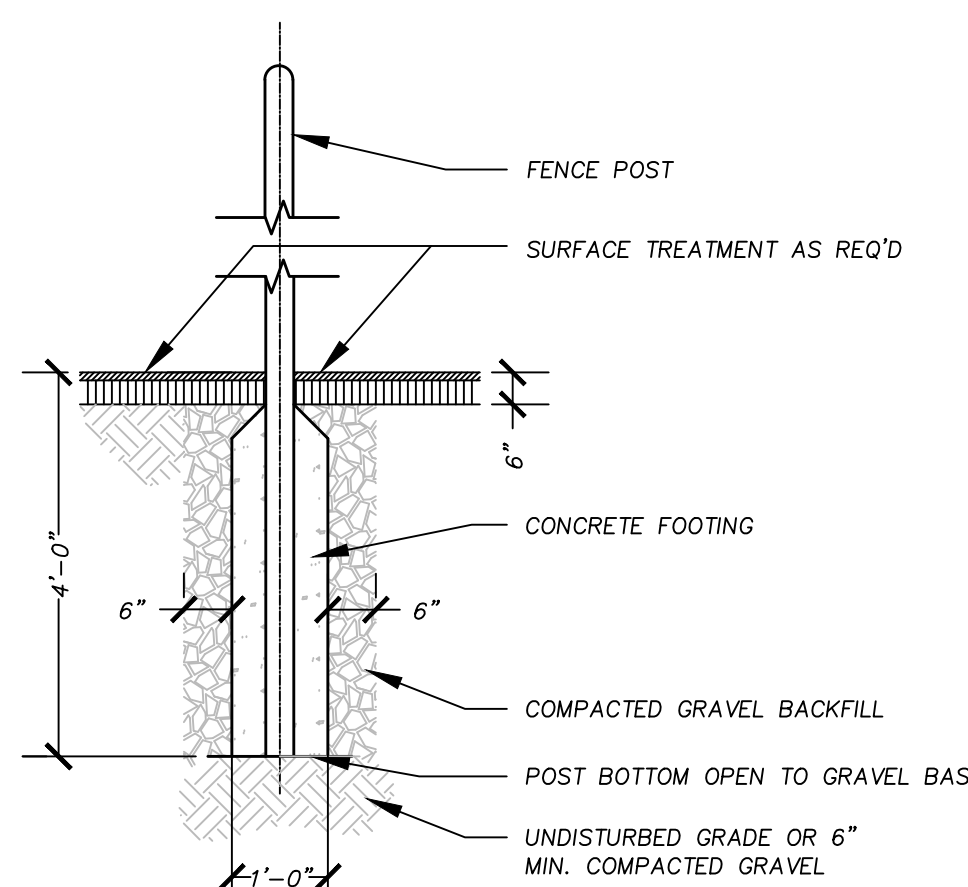


**DETAIL A-TYPICAL FIELD POST**  
NOT TO SCALE

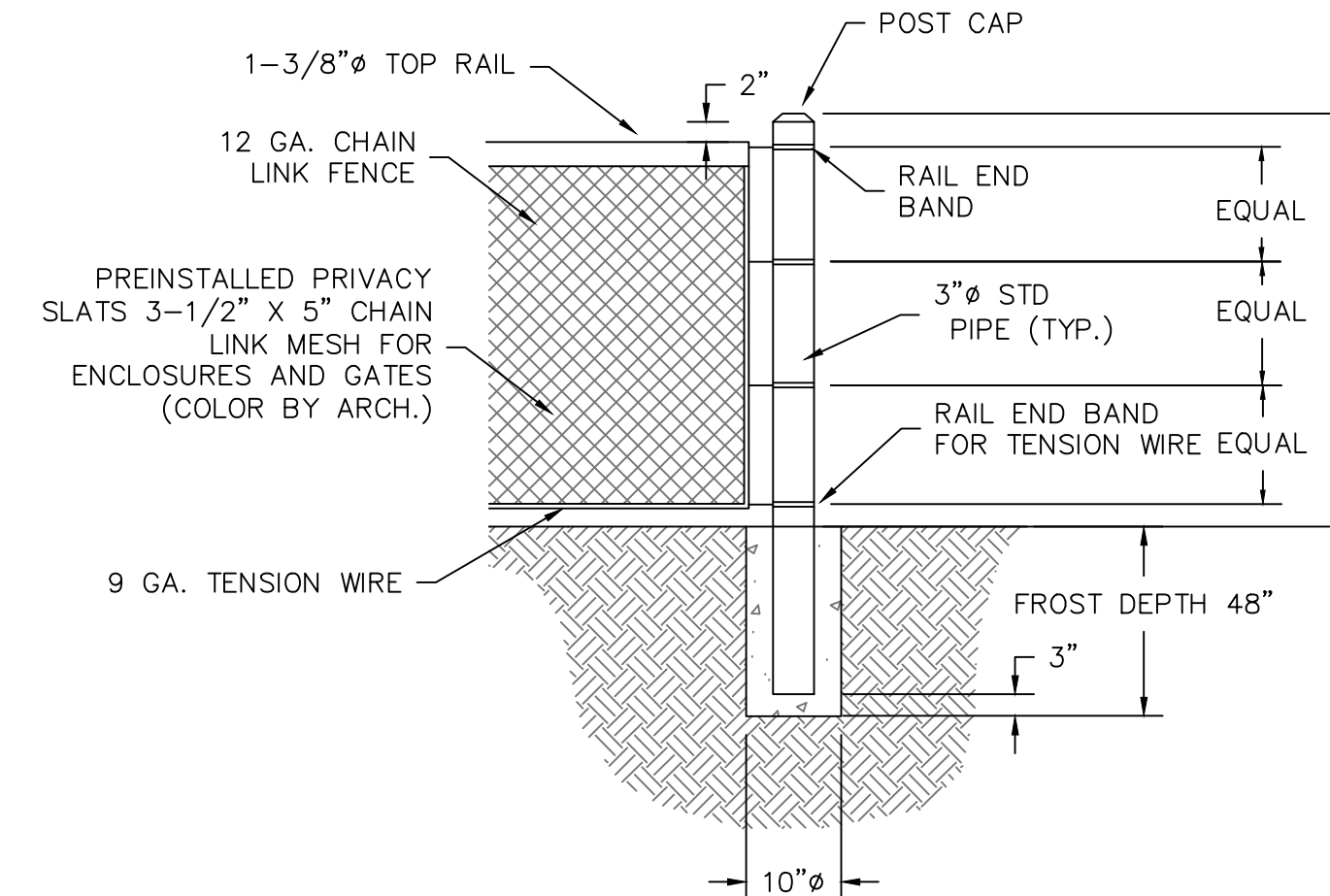
GUARDRAIL TO BE INSTALLED AND CONSTRUCTED WITH MATERIALS AS SPECIFIED IN COMMONWEALTH OF MASS. DEPT. OF TRANSPORTATION, "CONSTRUCTION STANDARDS" OCT 2017, SECTION 400 FOR STEEL POSTS AND W-BEAM PANEL, ONE SIDED POST & OFFSET BLOCK DETAILS SHEET 400.1.4 MOUNTING HEIGHTS SHEET 400.1.5



**STEEL BEAM GUARDRAIL - LOWER LEVEL**  
NOT TO SCALE



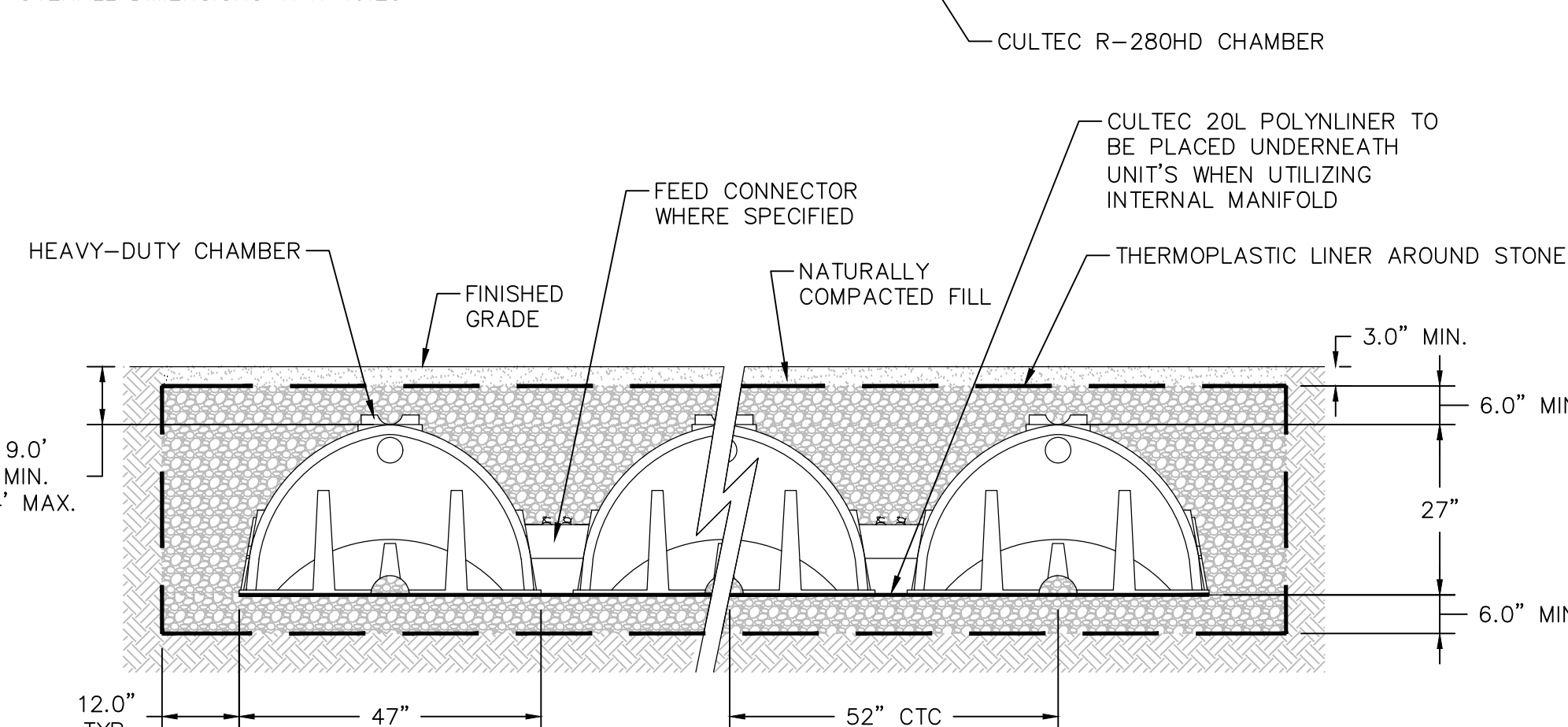
**CHAIN LINK FENCE FOOTING**  
NOT TO SCALE



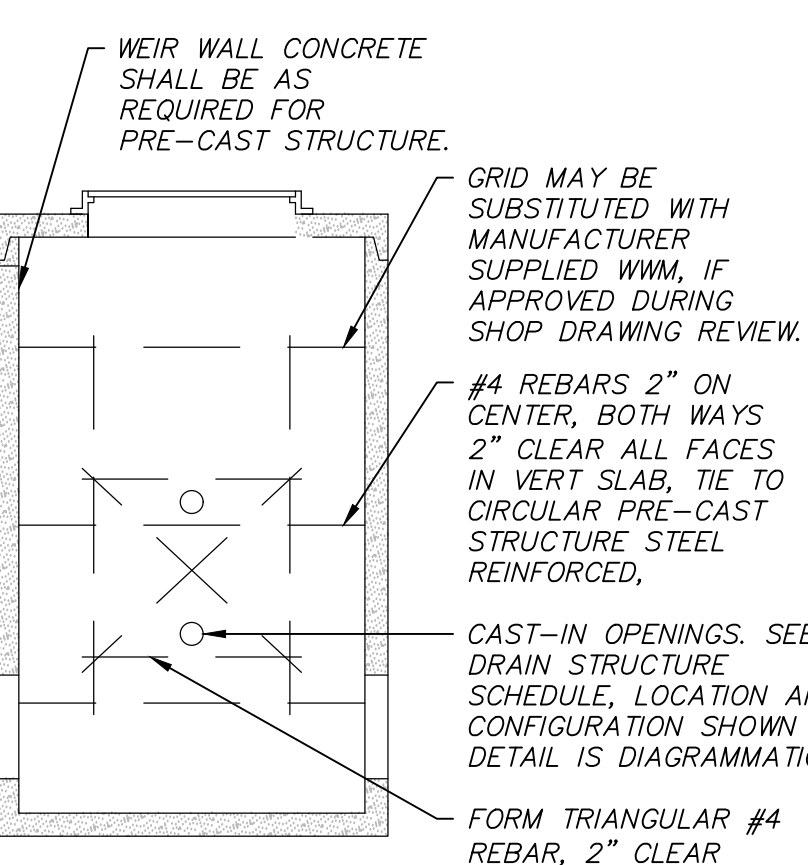
**DETAIL B-TYPICAL CORNER POST**  
NOT TO SCALE

**CHAIN LINK FENCE DETAILS**

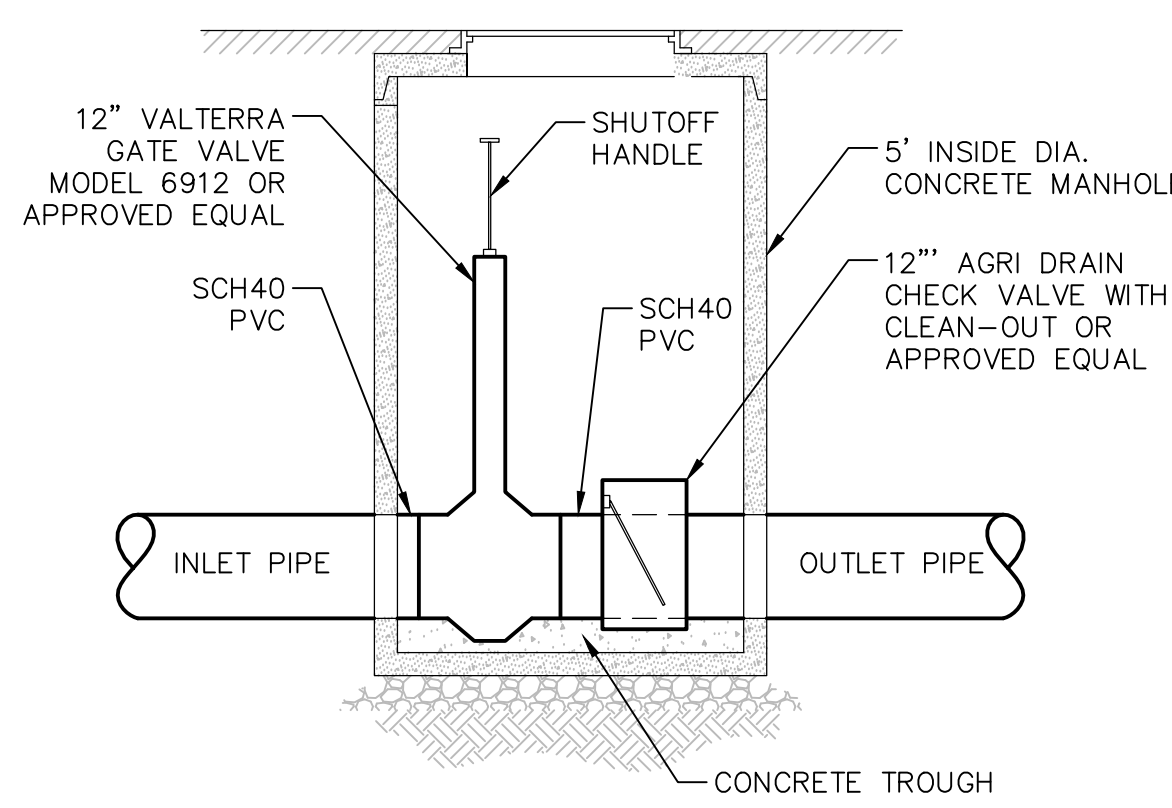
- NOTES:  
CULTEC R-280HD 11 ROWS, 2 CHAMBERS TO ROW OVERALL DIMENSIONS 17'X 49.25'



**RECHARGE AREA**  
NOT TO SCALE

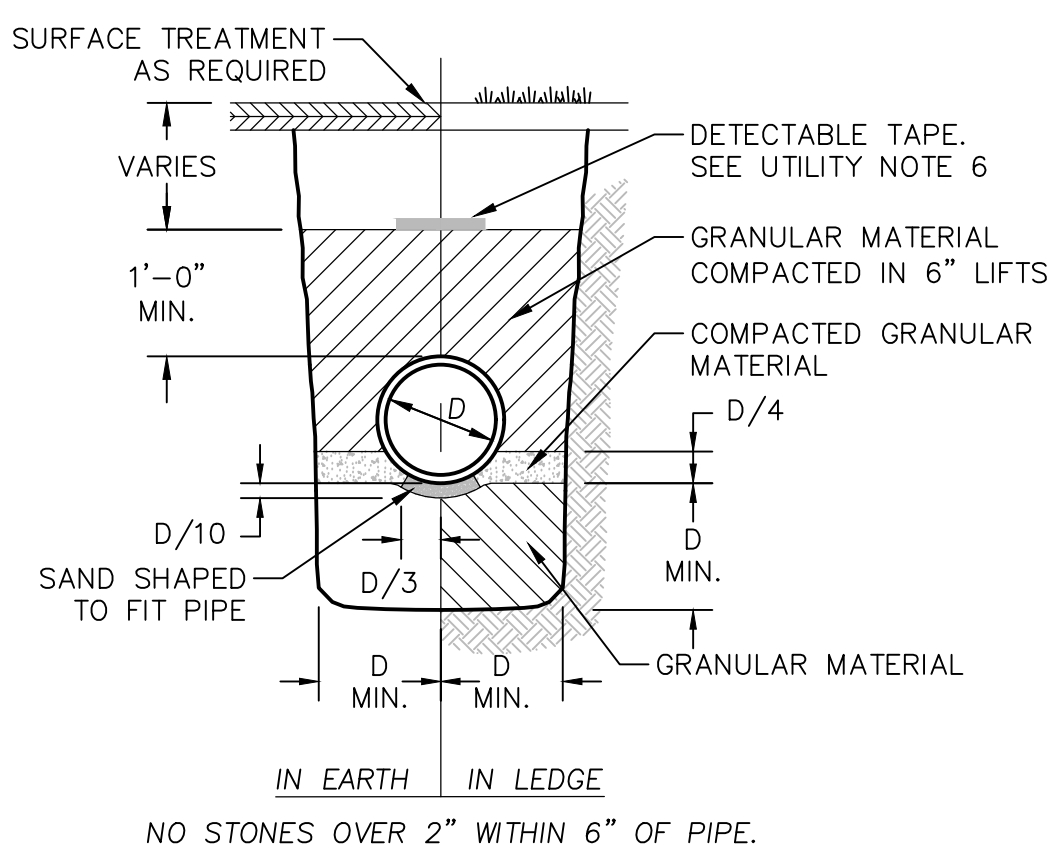


**WEIR WALL REINFORCEMENT SKETCH**



- NOTE:  
CONNECT PIPES WITH FERNCO COUPLINGS OR APPROVED EQUAL.

**OUTLET CONTROL STRUCTURE (DMH 5D)**  
NOT TO SCALE

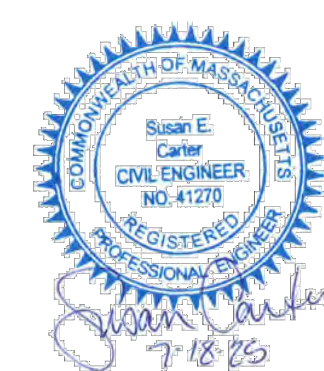


**UTILITY TRENCH DETAIL**  
NOT TO SCALE

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Certification



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Architecture - Project Management - Interior Design

Project

**MERRIMACK VALLEY REGIONAL TRANSIT AUTHORITY**

**FUEL TANK RELOCATION AND RETAINING WALL**



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Drawing Status  
**FOR CONSTRUCTION**

Issued On 7/16/2025

Sheet Contents

**CONSTRUCTION DETAILS**

Project Number. 6859

Drawing No.

**C-5**

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