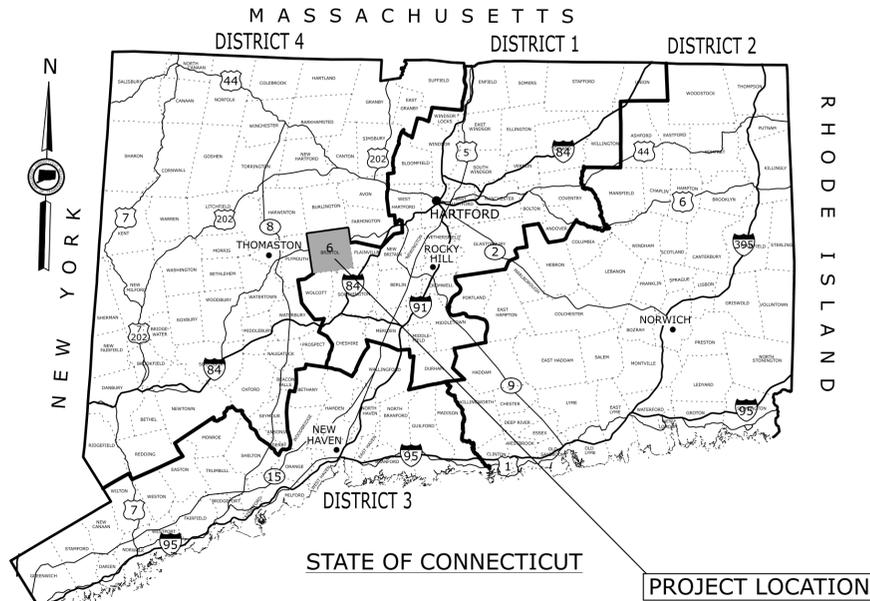


# Plans For REPLACEMENT OF DIVINITY STREET CULVERT OVER UNNAMED BROOK

Town(s)/City of  
**CITY OF BRISTOL**



**GENERAL NOTES:**

1. CONSTRUCTION SPECIFICATIONS:  
Connecticut Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 819 and Special Provisions
3. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983
4. VERTICAL DATUM BASED ON NAVD 1988
5. Surveyed By: Clark Land Surveying, LLC

ROAD	MAINTENANCE RESPONSIBILITY	LENGTH
DIVINTY STREET	CITY OF BRISTOL	140 FEET

F.A.P. #	MAINTENANCE RESPONSIBILITY	PROJECT #
####(###)	CITY	L017-0004



LOCATION PLAN  
NOT TO SCALE

LIST OF SUBSETS		
SUBSET NO.	SUBSET TITLE	SUBSET SHEET COUNT
1	GENERAL	2
2	REVISIONS	1
3	HIGHWAY	11
4	STRUCTURES	15
	HIGHWAY STANDARDS	
	TRAFFIC STANDARDS	

LIST OF DRAWINGS	
DWG. NO.	DRAWING TITLE
G-01	TITLE SHEET
G-02	DETAILED ESTIMATE SHEET

STANDARD CONVENTIONS			
<p>North Arrow W/No. Coord.</p> <p>Edge Of Road</p> <p>Concrete Pavement</p> <p>Dirt Road</p> <p>B.C.L.C.</p> <p>Granite Curb</p> <p>Guide Rail</p> <p>Concrete Median Barrier</p> <p>Bit. Walk</p> <p>Contc. Sidewalk</p> <p>Railroad Tracks</p>	<p>Grid Arrow</p> <p>Limit Of Marsh</p> <p>Stone Wall</p> <p>Ledge Outcrop</p> <p>Inland Wetland Limits</p> <p>STATE LINE</p> <p>Power Line</p> <p>Swamp</p> <p>Building</p> <p>Transmission Tower</p>	<p>Chain Link Fence</p> <p>Rustic Fence</p> <p>Pipe Fence</p> <p>Board Fence</p> <p>Property Line</p> <p>Lot Line</p> <p>Easement Line</p>	<p>Water Edge</p> <p>Stream</p> <p>Ditch</p> <p>TOWN LINE</p> <p>Highway Line</p> <p>Street Line</p>

SUBMITTED BY: TRANSPORTATION PRINCIPAL ENGINEER -

APPROVAL RECOMMENDED BY: MANAGER OF -

APPROVED BY: TRANSPORTATION ENGINEERING ADMINISTRATOR - Scott A. Hill, P.E.

Plans For  
**REPLACEMENT OF DIVINITY STREET CULVERT  
OVER UNNAMED STREAM**

Town(s)/City  
**CITY OF BRISTOL**

STATE PROJECT NO.  
**L017-0004**

DRAWING NO.  
**G-01**  
SHEET NO.  
**01.01**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

# DETAIL ESTIMATE SHEET

FOR THE CONSTRUCTION OF

REPLACEMENT OF DIVINITY STREET CULVERT OVER UNNAMED BROOK

IN THE CITY OF

BRISTOL

FROM STA. 10+30 TO STA. 11+70

LENGTH: 140.000 ft

BASE COURSE: NA

WIDTH: - FT

DEPTH: - IN

SURFACE COURSE: NA

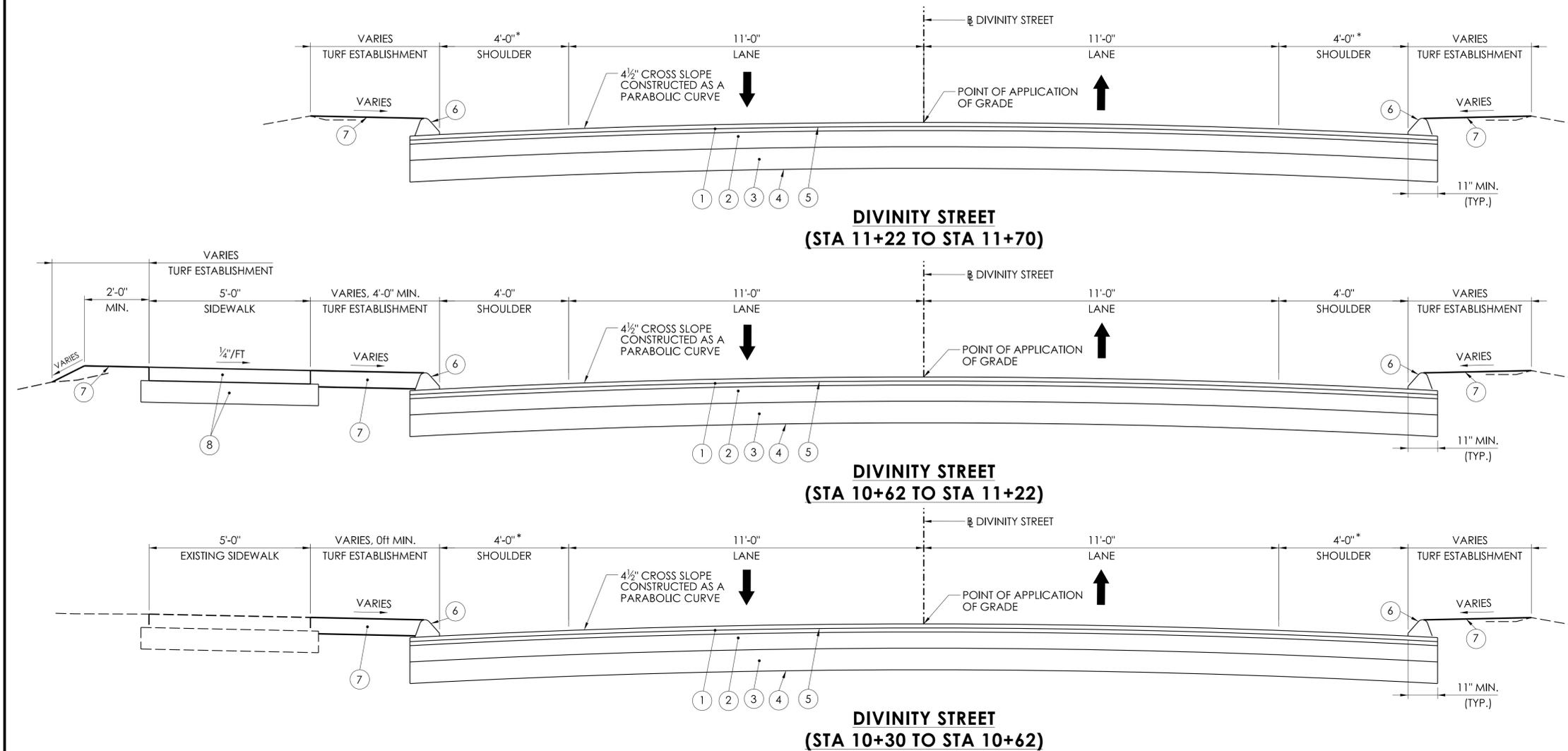
WIDTH: - FT - IN

ITEM	HIGHWAY ITEMS																																								
	0201001	0202000	0202100	0202452A	0202529	0204151A	0207000	0209001	0211000	0212000	0219001A	0219011A	028001.1	0304002	04061710	04062360	066005.1	068006.1	0686500.1	0686000.18	0686000.24	0686000.3	0686230.24	0686900	0686950.1	0703010	0703012	0815001	0821000.01	0921001	0922501	0940001	0944000	95019A	95039	95040A	95040A	95051A	0975004	980020	1403501A
UNIT	L.S.	C.Y.	C.Y.	EA	L.F.	L.S.	C.Y.	S.Y.	S.Y.	C.Y.	L.F.	EA	C.Y.	C.Y.	TON	GAL	EA	EA	EA	L.F.	L.F.	L.F.	L.F.	EA	L.F.	C.Y.	C.Y.	L.F.	L.F.	S.F.	S.Y.	MGA	S.Y.	S.Y.	S.Y.	S.Y.	S.F.	S.Y.	L.S.	EA	
	1	228	5	2	189	1	6	495	64	110	236	6	10	83	78	56	1	1	3	4	6	83	4	1	64	104	22	224	60	299	49	33	384	296	87	55	33	83	1	1	1
SUBTOTAL	1	228	5	2	189	1	6	495	64	110	236	6	10	83	78	56	1	1	3	4	6	83	4	1	64	104	22	224	60	299	49	33	384	296	87	55	33	83	1	1	1
UNASSIGNED	12				11		4	25	6	6	14		1	5	4	4				1	1	5	1		6	6	8	16	10	6	11	7	36	24	13	5	7	7			
TOTAL	1	240	5	2	200	1	10	520	70	116	250	6	11	88	82	60	1	1	3	5	7	88	5	1	70	110	30	240	70	305	60	40	420	320	100	60	40	90	1	1	1

ITEM	BRIDGE ITEMS																				TRAFFIC ITEMS									
	020103A	020102BA	020216A	020217A	020302	0216000	0601062	0601064	0601132A	0601502	0602030	070708A	0708001	0716000	0728032	0755010	0819002A	0904051A	0905012A	0974000	0970006	0971001A	0976002	0978002	0979003	0979004	0981100	120837A	1210102	1220027
UNIT	L.F.	L.F.	C.Y.	EST.	C.Y.	C.Y.	C.Y.	L.S.	S.F.	L.B.	S.Y.	S.Y.	S.F.	C.Y.	S.Y.	S.Y.	L.F.	L.F.	C.Y.	HR.	LS	DAY	EA	EA	EA	EA	S.F.	L.F.	S.F.	
	60	10	84	1	922	629	88	74	1	92	8310	62	160	560	82	247	24	78	57	118	72	1	510	30	4	1	15	18	300	415
SUBTOTAL	60	10	84	1	922	629	88	74	1	92	8310	62	160	560	82	247	24	78	57	118	72	1	510	30	4	1	15	18	300	415
UNASSIGNED			6		48	41	12	6		8	420	8	10	30	8	13	7		1	12	8		30						20	
TOTAL	60	15	90	1	970	670	100	80	1	100	8730	70	170	590	90	260	30	78	58	130	80	1	540	30	4	1	15	18	320	415





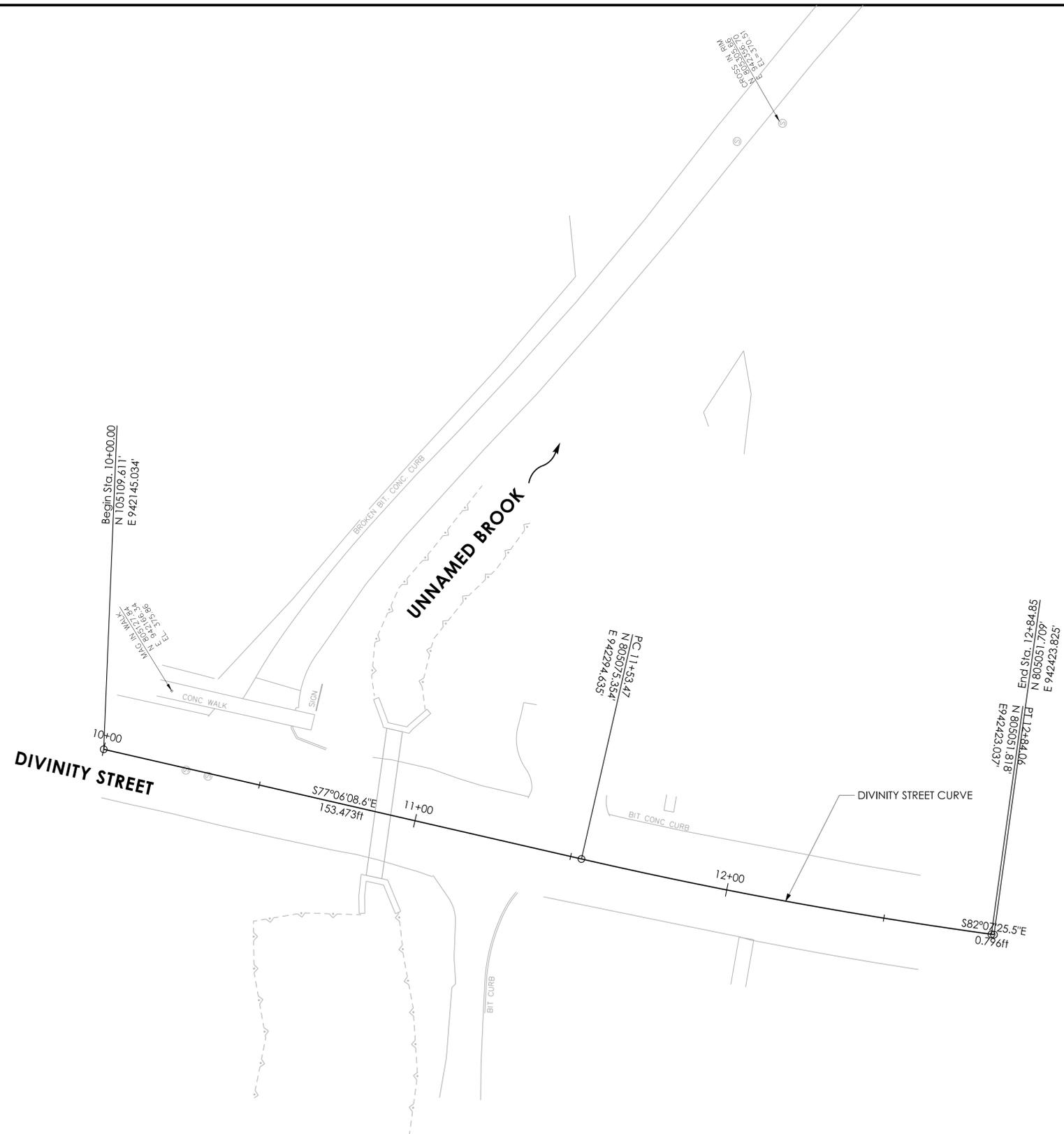


- LEGEND**
- ① 3" HMA S0.5 (PLACED IN 2 EQUAL LIFTS)
  - ② 6" PROCESSED AGGREGATE BASE
  - ③ 8" SUBBASE
  - ④ FORMATION OF SUBGRADE
  - ⑤ MATERIAL FOR TACK COAT
  - ⑥ BITUMINOUS CONCRETE LIP CURBING (6" REVEAL)
  - ⑦ 4" FURNISHING AND PLACING & TURF ESTABLISHMENT
  - ⑧ CONCRETE SIDEWALK (5" CONCRETE ON 8" GRANULAR FILL, SEE CTDOT STANDARD SHEET NO. HW-921\_01)
- ↑ DIRECTION OF TRAVEL AHEAD STATION  
 ↓ DIRECTION OF TRAVEL BACK STATION
- \* TAPER TO MATCH EXISTING AT LIMITS OF WORK AT RATE OF 15:1

- NOTES:**
1. SEE CTDOT STANDARD SHEET NO. HW-992\_01 FOR BITUMINOUS CONCRETE DRIVEWAY TYPICAL SECTION.

**GENERAL NOTES:**

1. TOPOGRAPHIC INFORMATION IS BASED UPON FIELD SURVEY CONDUCTED BY CLARK LAND SURVEYING, LLC (HORIZONTAL DATUM - NAD83, VERTICAL DATUM NAVD 1988). STREET AND PROPERTY LINE INFORMATION DEPICTED ARE BASED ON LIMITED FIELD SURVEYS AND FROM VARIOUS SOURCES.
2. THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN, SHOULD BE CONSIDERED APPROXIMATE. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "CALL BEFORE YOU DIG", 1-800-922-4455. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
3. WSP USA ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF MAPS AND DATA WHICH HAVE BEEN SUPPLIED BY OTHERS.
4. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR, PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY FOR DETERMINATION.
5. SEDIMENT AND EROSION CONTROL MEASURES, AS DEPICTED ON THESE PLANS, SHALL BE IMPLEMENTED PRIOR TO CONSTRUCTION AND MAINTAINED UNTIL PERMANENT COVER STABILIZATION IS ESTABLISHED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL CONFORM TO THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", AND IN ALL CASES BEST MANAGEMENT PRACTICES SHALL PREVAIL. THE DESIGNATED BRISTOL INLAND WETLANDS ENFORCEMENT OFFICER SHALL BE NOTIFIED OF ANY SOIL AND EROSION CONTROL MEASURES NOT DEPICTED ON THE PLANS.
6. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH APPROPRIATE UTILITY COMPANIES REGARDING RESETTING OF THEIR FACILITIES AND SCHEDULING OF SUCH WORK.
7. ANY MAINTENANCE OR REFUELING OF EQUIPMENT AND VEHICLES SHALL BE PERFORMED AT LEAST 50' FROM WETLANDS OR WATERCOURSES. OIL, GASOLINE, AND CHEMICALS NEEDED AT THE SITE SHALL BE STORED IN A SECONDARY CONTAINER AT LEAST 50' FROM WETLANDS OR WATERCOURSES TO PREVENT CONTAMINATION FROM POSSIBLE LEAKS. CONTRACTOR SHALL HAVE A SPILL KIT ON SITE AT ALL TIMES.
8. THE PLANS REQUIRE A CONTRACTOR'S WORKING KNOWLEDGE OF LOCAL, MUNICIPAL, WATER AUTHORITY, AND STATE CODES FOR UTILITY SYSTEMS. ANY CONFLICTS BETWEEN MATERIALS AND LOCATIONS SHOWN, AND LOCAL REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE EXECUTION OF WORK. THE ENGINEER WILL NOT BE HELD LIABLE FOR COSTS INCURRED TO IMPLEMENT OR CORRECT WORK WHICH DOES NOT CONFORM TO LOCAL CODE.
9. ALL SLOPES AND DISTURBED AREAS ARE TO BE STABILIZED WITH 4" TOPSOIL AND TURF MUST BE ESTABLISHED UNLESS OTHERWISE NOTED ON THE PLANS.
10. DRIVEWAY PAVING LIMITS SHALL MATCH EXISTING CONDITIONS. DRIVEWAYS SHALL BE SAWCUT NEAT AND TACK COAT SHALL BE APPLIED PRIOR TO PAVING.
11. WATER FOR DUST CONTROL SHALL BE USED, OTHER MEANS WILL REQUIRE CITY APPROVAL PRIOR TO USE.
12. THE CONTRACTOR SHALL RESET ANY DISTURBED MONUMENTS IDENTIFIED ON THE PLANS TO THE PROPER ELEVATION AND LOCATION AT THEIR OWN EXPENSE. (THE ENGINEER AND THE CITY MUST BE NOTIFIED WHEN THIS IS DONE.)



DESIGNER/DRAFTER: BH  
 CHECKED BY: KLM

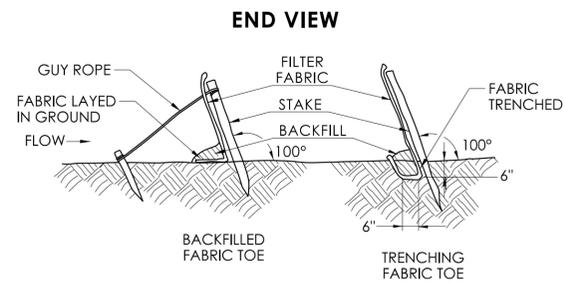


SIGNATURE/  
 BLOCK:



PROJECT NUMBER: L017-0004  
 PROJECT DESCRIPTION: REPLACEMENT OF DIVINITY STREET CULVERT OVER UNNAMED BROOK  
 TOWN(S): BRISTOL  
 DRAWING TITLE: SURVEY CONTROL PLAN

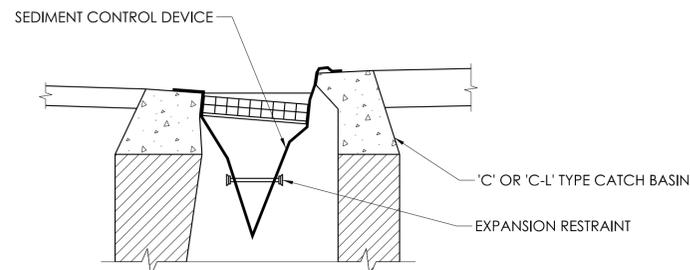
DRAWING NO.  
 TIE-01  
 SHEET NO.  
 03.03



SELF SUPPORTING SILT FENCE SHOULD BE PLACED SO THE FENCE LEANS TOWARD THE SOURCE OF SEDIMENT. SPACING OF STAKES AND USE OF GUY ROPES ARE DETERMINED ACCORDING TO FIELD NEEDS.

GUY ROPE/WIRE AND TIE BACK STAKE SHOULD BE OF SUFFICIENT SIZE TO WITHSTAND THE EXPECTED LOAD. FOLLOW MANUFACTURER'S RECOMMENDATION FOR TRENCH DIMENSIONS.

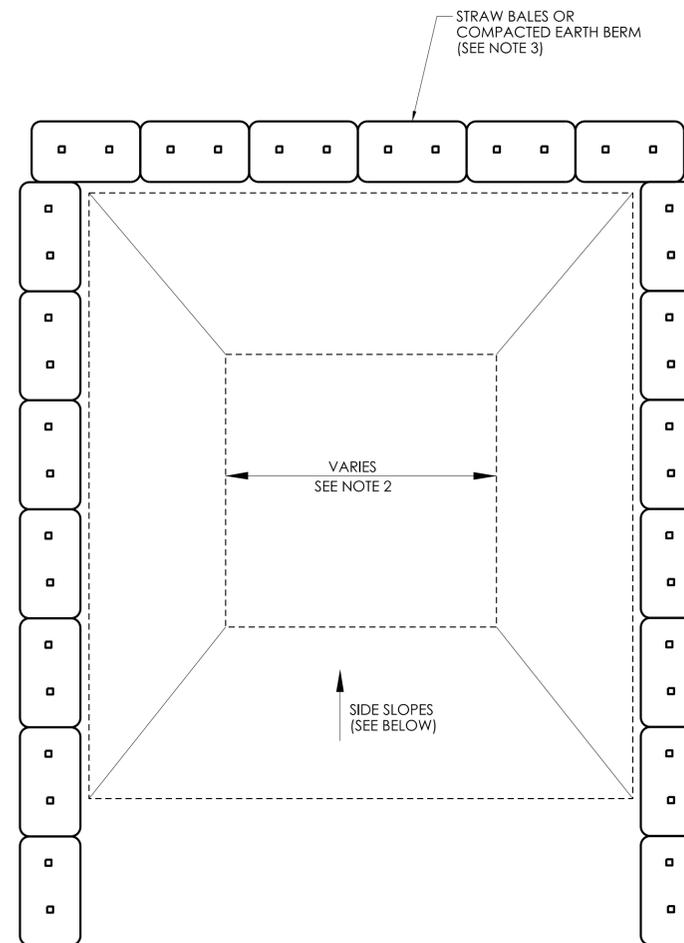
**SEDIMENTATION CONTROL SYSTEM INSTALLATION**  
NOT TO SCALE



NOTE:  
SEDIMENT CONTROL DEVICE TO REMAIN IN CB UNTIL AREA IS COMPLETELY STABILIZED.

**SEDIMENT CONTROL SYSTEM AT CATCH BASIN**

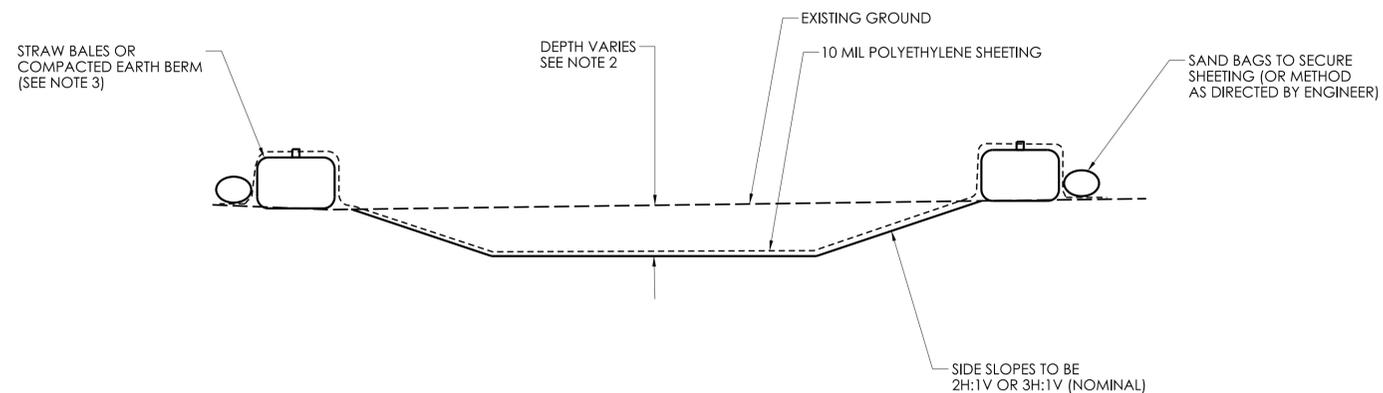
- NOTES:
1. MINIMUM STAKE LENGTH IS 42 INCHES.
  2. MINIMUM STAKE EMBEDMENT DEPTH IS 18 INCHES.
  3. MINIMUM LENGTH OF SILT FENCE IS 15 FEET.
  4. MAXIMUM POST SPACING IS 10 FEET.
  5. JOINTS ONLY AT SUPPORT POST WITH MINIMUM 6 INCH OVERLAP, SECURELY SEALED.
  6. SEDIMENTATION DEPOSITS SHALL BE REMOVED WHEN IT REACHES 1/2 THE HEIGHT OF THE SILT FENCE.
  7. SILT FENCE SHALL NOT BE USED IN A WATER COURSE.
  8. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS, AND WHEN DIRECTED BY THE ENGINEER, FENCE WILL BE REMOVED AND ANY SEDIMENTATION WILL BE THINLY SPREAD UPON EXISTING GROUND COVER.



**PLAN**

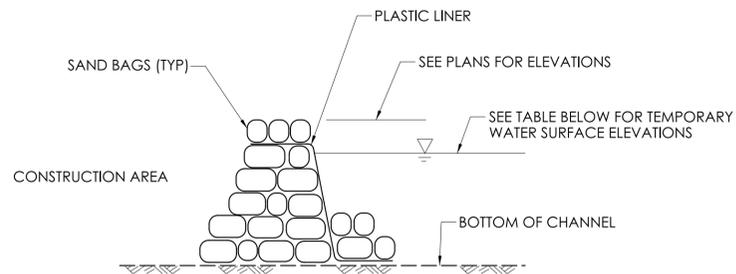
**GENERAL NOTES:**

1. CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. THE CONCRETE WASHOUT AREA SHALL BE ENTIRELY SELF-CONTAINED.
2. THE CONTRACTOR SHALL SUBMIT THE DESIGN, LOCATION AND SIZING OF THE CONCRETE WASHOUT AREA(S) WITH THE PROJECT'S EROSION AND SEDIMENTATION CONTROL PLAN AND SHALL BE APPROVED BY THE ENGINEER.  
  
LOCATION: WASHOUT AREA(S) ARE TO BE LOCATED AT LEAST 50 FEET FROM ANY STREAM, WETLAND, STORM DRAINS, OR OTHER SENSITIVE RESOURCE. THE FLOOD CONTINGENCY PLAN MUST ADDRESS THE CONCRETE WASHOUT IF THE WASHOUT IS TO BE LOCATED WITHIN THE FLOODPLAIN.  
  
SIZE: THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING, BUT NOT LIMITED TO, OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.
3. SURFACE DISCHARGE IS UNACCEPTABLE. THEREFORE, STRAW BALES OR OTHER CONTROL MEASURES, AS APPROVED BY THE ENGINEER, SHOULD BE USED AROUND THE PERIMETER OF THE CONCRETE WASHOUT AREA FOR CONTAINMENT.
4. SIGNS SHOULD BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CONCRETE AREA(S) AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS. WASHOUT AREA(S) SHOULD BE FLAGGED WITH SAFETY FENCING OR OTHER APPROVED METHOD.
5. WASHOUT AREA(S) ARE TO BE INSPECTED AT LEAST ONCE A WEEK FOR STRUCTURAL INTEGRITY, ADEQUATE HOLDING CAPACITY AND CHECKED FOR LEAKS, TEARS, OR OVERFLOWS. (AS REQUIRED BY THE CONSTRUCTION SITE ENVIRONMENTAL INSPECTION REPORT) WASHOUT AREA(S) SHOULD BE CHECKED AFTER HEAVY RAINS.
6. HARDENED CONCRETE WASTE SHOULD BE REMOVED AND DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO HALF OF THE CONCRETE WASHOUT'S DEPTH. THE WASTE CAN BE STORED AT AN UPLAND LOCATION, AS APPROVED BY THE ENGINEER. ALL CONCRETE WASTE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH ALL APPLICABLE LAWS, REGULATIONS, AND GUIDELINES.
7. PAYMENT FOR THIS ITEM IS TO BE INCLUDED UNDER THE GENERAL COST OF THE WORK FOR THE PROJECT, INCLUDING SITE RESTORATION.



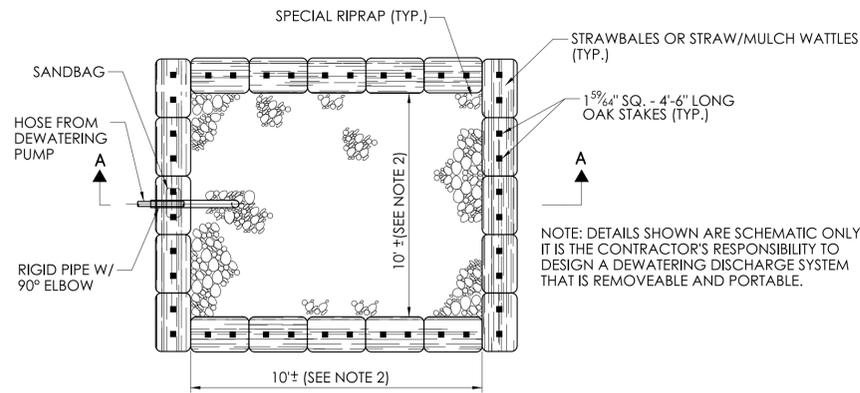
**CONCRETE WASHOUT AREA**

NOT TO SCALE  
(SEE NOTE 2)



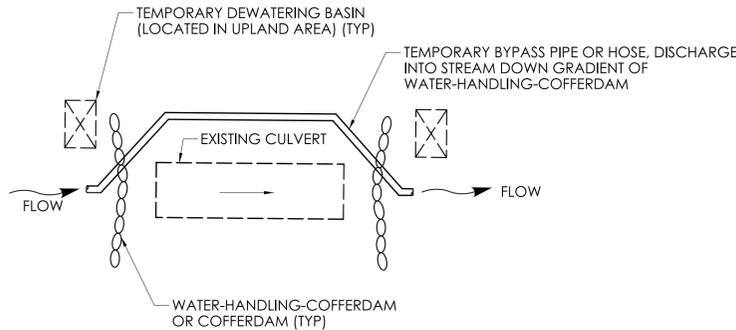
**SUGGESTED WATER-HANDLING-COFFERDAM  
DETAIL - SANDBAGS**  
NOT TO SCALE

NOTE: THE COST OF THIS WORK SHALL BE INCLUDED UNDER THE ITEM "HANDLING WATER". SEE SPECIAL PROVISIONS.

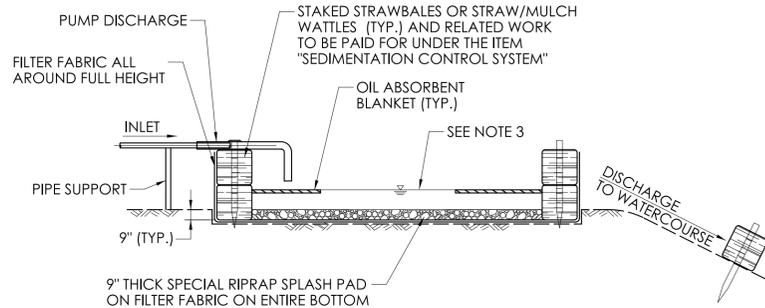


**PLAN**

NOTE: DETAILS SHOWN ARE SCHEMATIC ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN A DEWATERING DISCHARGE SYSTEM THAT IS REMOVEABLE AND PORTABLE.



**TEMPORARY PUMPING**  
NOT TO SCALE



**SECTION A-A**

**TEMPORARY SEDIMENT BASIN FOR DEWATERING DISCHARGE**  
NOT TO SCALE

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	1.4 CFS
AVERAGE SPRING FLOW	2.8 CFS
2 YEAR FREQUENCY DISCHARGE	81 CFS
LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 5 x AVERAGE SPRING FLOW	14 CFS
TEMPORARY DESIGN FREQUENCY	5 x ASF
TEMPORARY DESIGN DISCHARGE	14 CFS
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	368.9
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	368.1

**BASIN NOTES:**

- CONTRACTOR TO BRACE STRAWBALES OR STRAW/MULCH WATTLES AS REQUIRED FOR STABILITY.
- DIMENSIONS TO VARY DEPENDENT UPON DE-WATERING RATE.
- VOLUME OF BASIN IS EQUAL TO THE MAXIMUM VOLUME OF WATER CAPABLE OF BEING PUMPED.
- SPECIAL RIPRAP STONE SHALL CONFORM TO NO. 3 STONE AS SHOWN IN SECTION M.01.01 OF CONNDOT FORM 819.
- AT THE COMPLETION OF THE WORK, THE BASIN AND ALL RELATED MATERIALS SHALL BE REMOVED FROM THE SITE, AND THE AREA SHALL BE RETURNED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. THE COST OF THIS WORK WILL BE INCLUDED UNDER EACH ITEM, EXCEPT THE CLEAN-UP WHICH WILL NOT BE MEASURED FOR PAYMENT BUT INCLUDED IN THE GENERAL COST OF THE WORK.
- THE TEMPORARY SEDIMENT BASIN SHALL BE DESIGNED IN ACCORDANCE WITH CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.

**UNCONFINED IN-STREAM WORK BMP:**

ANY UNCONFINED IN-STREAM WATER WORK WITHIN THE WATERCOURSE SHALL BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.

CONFINEMENT OF A WORK AREA BY COFFERDAM TECHNIQUES USING SANDBAG PLACEMENT, SHEET PILE INSTALLATION (VIBRATORY METHOD ONLY), PORTADAM, OR SIMILAR CONFINEMENT DEVICES IS ALLOWED ANY TIME OF THE YEAR. THE REMOVAL OF SUCH CONFINEMENT DEVICES IS ALLOWED ANY TIME OF THE YEAR.

ONCE A WORK AREA HAS BEEN CONFINED, IN-WATER WORK WITHIN THE CONFINED AREA IS ALLOWED ANY TIME OF THE YEAR.

THE CONFINEMENT TECHNIQUE USED SHALL COMPLETELY ISOLATE AND PROTECT THE CONFINED AREA FROM ALL FLOWING WATER. THE USE OF SILT BOOM/CURTAIN OR SIMILAR TECHNIQUE AS A MEANS FOR CONFINEMENT IS PROHIBITED.

THE DEPARTMENT WILL REVIEW AND MAY APPROVE THE METHODS OF UNCONFINED IN-WATER WORK WITH CONSIDERATION OF THE FOLLOWING:

- PROPOSED SCHEDULE FOR WORKING OPERATIONS
- ALL UNCONFINED IN-WATER WORK SHALL BE MINOR IN NATURE
- DISTURBANCE SHALL BE LIMITED TO AREAS THAT HAVE BEEN APPROVED FOR TEMPORARY AND PERMANENT IMPACT
- BEST MANAGEMENT PRACTICES SHALL BE UTILIZED WHEREVER POSSIBLE TO MINIMIZE TURBIDITY/SEDIMENT TRANSPORT DOWNSTREAM
- DISTURBED AREAS AND THE DURATION OF DISTURBANCE SHALL BE MINIMIZED TO THE EXTENT POSSIBLE
- IN-STREAM WORK SHALL BE DONE DURING PERIODS OF LOW FLOW

**SUGGESTED SEQUENCE OF CONSTRUCTION:**

- IMPLEMENT DETOUR PLAN.
- CLOSE DIVINITY STREET AT THE CULVERT CROSSING. MAINTAIN ACCESS TO PRIVATE PROPERTIES.
- INSTALL SEDIMENTATION CONTROL SYSTEM (SCS), INCLUDING SCS AT CATCH BASIN AS NEEDED, AND PERFORM CLEARING AND GRUBBING.
- CONSTRUCT TEMPORARY DEWATERING BASIN.
- INSTALL TEMPORARY WATER-HANDLING-COFFERDAMS AND INSTALL TEMPORARY PUMPING.
- REMOVE EXISTING CULVERT CROSSING.
- CONSTRUCT CULVERT CROSSING.
- REGRADE EXISTING STREAMBED AT THE CULVERT INVERTS WITH STREAMBED MATERIAL.
- REMOVE TEMPORARY WATER-HANDLING-COFFERDAMS AND TEMPORARY PUMPING.
- UPON COMPLETION OF CULVERT CONSTRUCTION, ROADWAY TO BE RE-OPENED TO TRAFFIC.
- PERFORM FINAL GRADING AND INSTALL PLANTINGS.
- REMOVE SEDIMENTATION CONTROL SYSTEMS UPON PERMANENT STABILIZATION.

**WATER HANDLING NOTES:**

- THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER-HANDLING SYSTEM AS REQUIRED DURING THE CONSTRUCTION OF THE NEW STRUCTURE.
- EQUIPMENT SHALL NOT BE PERMITTED IN THE WATERCOURSE WHEN TEMPORARY WATER-HANDLING SYSTEM IS NOT IN PLACE WITHOUT APPROVAL FROM THE ENGINEER.
- DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS. THE EXACT POSITION MAY VARY BASED ON THE PUMPING DESIGN SUBMISSION APPROVED BY THE ENGINEER.
- WATER-HANDLING MEASURES SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND/WATERCOURSE IMPACT PLAN OF THE PERMIT PLANS.
- IF A PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR AND HAVE A MINIMUM CAPACITY AS SHOWN IN THE TEMPORARY HYDRAULIC TABLE. PUMP PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS. THE ENGINEER MAY APPROVE A CONSTRUCTION WATER-HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.
- ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING DRAINAGE SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. PUMPS/PIPES SHALL BE SIZED BY THE CONTRACTOR TO HANDLE THE EXPECTED FLOWS AND BE DISCHARGED TO A STABLE LOCATION. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL AND IS INCLUDED AS PART OF THE WATER-HANDLING.

**SCHEDULE OF RIGHTS AND EASEMENTS**

- A RIGHT TO GRADE REQUIRED
- B RIGHT TO REMOVE SHRUBS/TREES REQUIRED
- C RIGHT TO REMOVE AND REPLACE FENCE REQUIRED
- D SLOPE EASEMENT
- E EASEMENT TO CONSTRUCT AND MAINTAIN RETAINING WALL REQUIRED
- F EASEMENT TO EXCAVATE CHANNEL, PLACE RIPRAP AND REMOVE, USE OR RETAIN EXCAVATED MATERIAL REQUIRED
- G DRAINAGE RIGHT OF WAY REQUIRED

N/F  
DIVINITY HOLDINGS  
350 DIVINITY STREET

**BEGIN CONSTRUCTION LIMITS**  
**CITY OF BRISTOL PROJECT NO. L017-0004**

DIVINITY STREET STA 10+30  
SAWCUT AND MATCH EXISTING

**END CONSTRUCTION LIMITS**  
**CITY OF BRISTOL PROJECT NO. L017-0004**

DIVINITY STREET STA 11+70  
SAWCUT AND MATCH EXISTING

**SIGNING NOTES:**

- ALL EXISTING SIGNS OUTSIDE OF THE PROJECT LIMITS OF CONSTRUCTION ARE TO REMAIN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH CTDOT STANDARD SHEET NO. TR-1208\_01 "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS" AND SHEET NO. TR-1208\_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" EXCEPT AS OTHERWISE NOTED ON THE PLANS.
- ALL SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
- SIGNS SHALL BE INSTALLED NO CLOSER THAN 10 FEET FROM UTILITY POLES.
- ALL SIGNS ARE NEW UNLESS OTHERWISE NOTED. PAID AS ITEM 1208937A SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING) AND HAVE A YELLOW BACKGROUND.
- ROAD MAY FLOOD SIGNS SHALL BE POSTED AT A LOCATION WHERE THE FULL ROADWAY IS ABOVE ELEVATION 375.5 WITH EXACT LOCATION TO BE DETERMINED IN THE FIELD.

CURVE #1	
PC	STA 11+53.47
	N 805075.354
	E 942294.635
PI	STA 12+18.81
	N 805060.77
	E 942358.320
PT	STA 12+84.06
	N 805051.818
	E 942423.037
Δ	05° 01' 17"
T	65.33'
L	130.58'
R	1490.00'

**LEGEND:**

- OHW — ORDINARY HIGH WATER (OHW)
- STATE WETLANDS
- SEDIMENTATION CONTROL SYSTEM (SCS)
- SURVEYED EDGE OF WATER
- SOIL BORING LOCATION (SEE 04-STRUCTURES FOR INFORMATION)
- PROPOSED TEST PIT LOCATION



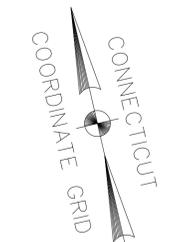
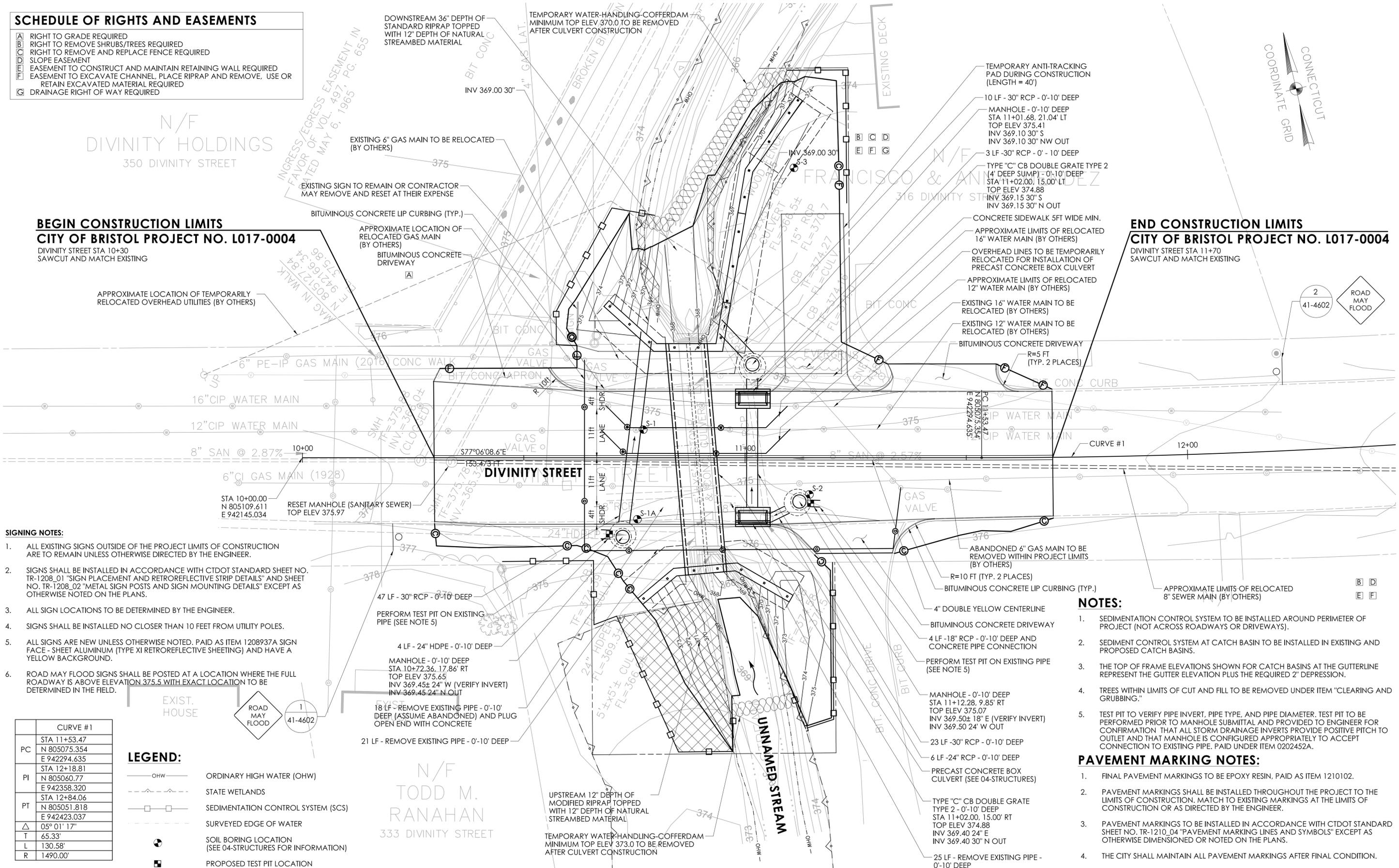
SIGNATURE/  
BLOCK:

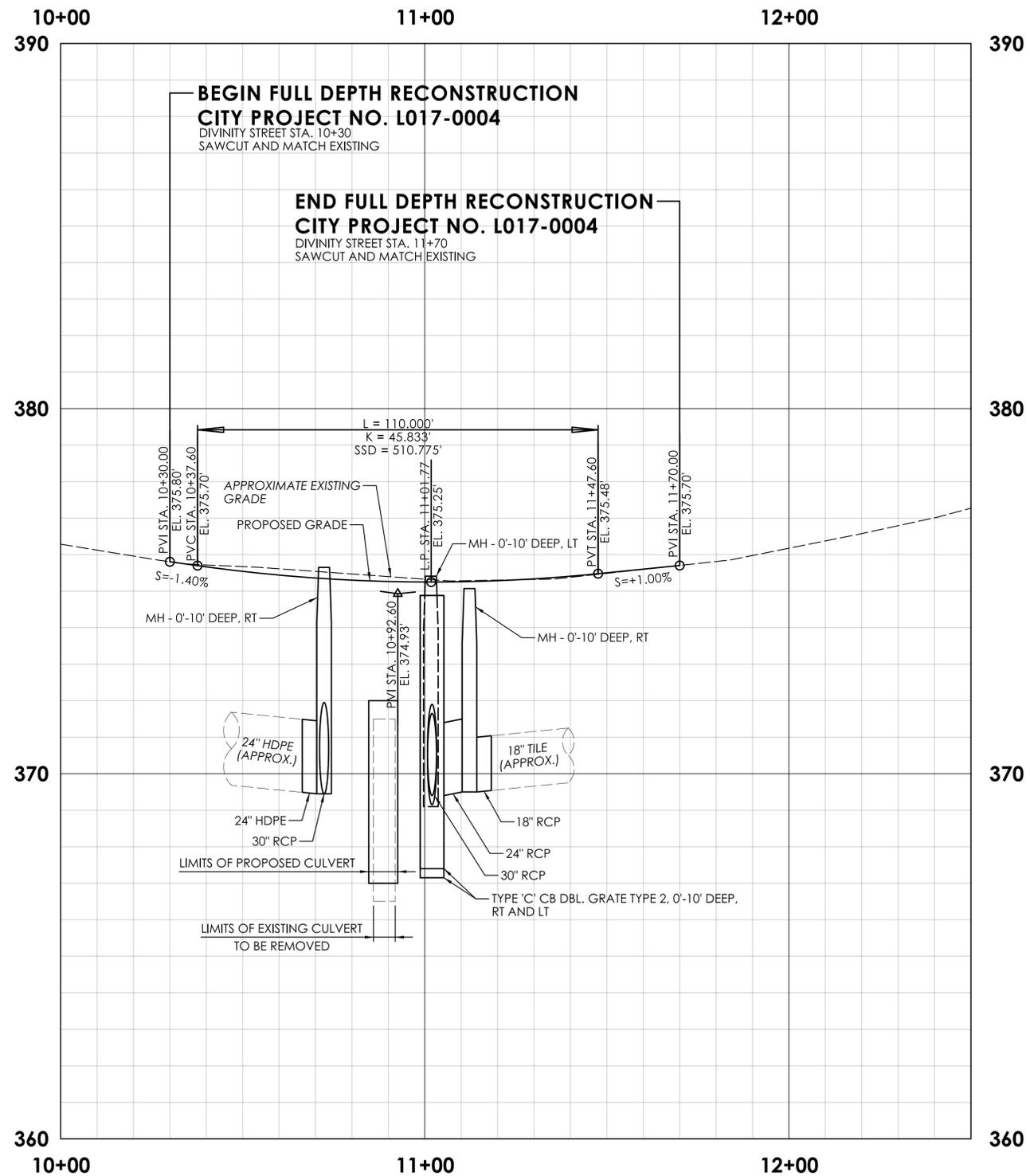
DESIGNER/DRAFTER: JCG/JCG CHECKED BY: KM



PROJECT NUMBER: L017-0004  
PROJECT DESCRIPTION: REPLACEMENT OF DIVINITY STREET CULVERT OVER UNNAMED BROOK  
TOWN(S): BRISTOL  
DRAWING TITLE: HIGHWAY PLAN

DRAWING NO.  
HWY-01  
SHEET NO.  
03.06



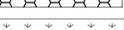


**NOTES:**

1. EXISTING AND PROPOSED GAS UTILITY NOT SHOWN.
2. EXISTING AND PROPOSED WATER UTILITY NOT SHOWN.
3. EXISTING AND PROPOSED SANITARY UTILITY NOT SHOWN.
4. EXISTING STORM DRAINAGE THAT IS TO BE REMOVED IS NOT SHOWN.



**LEGEND:**

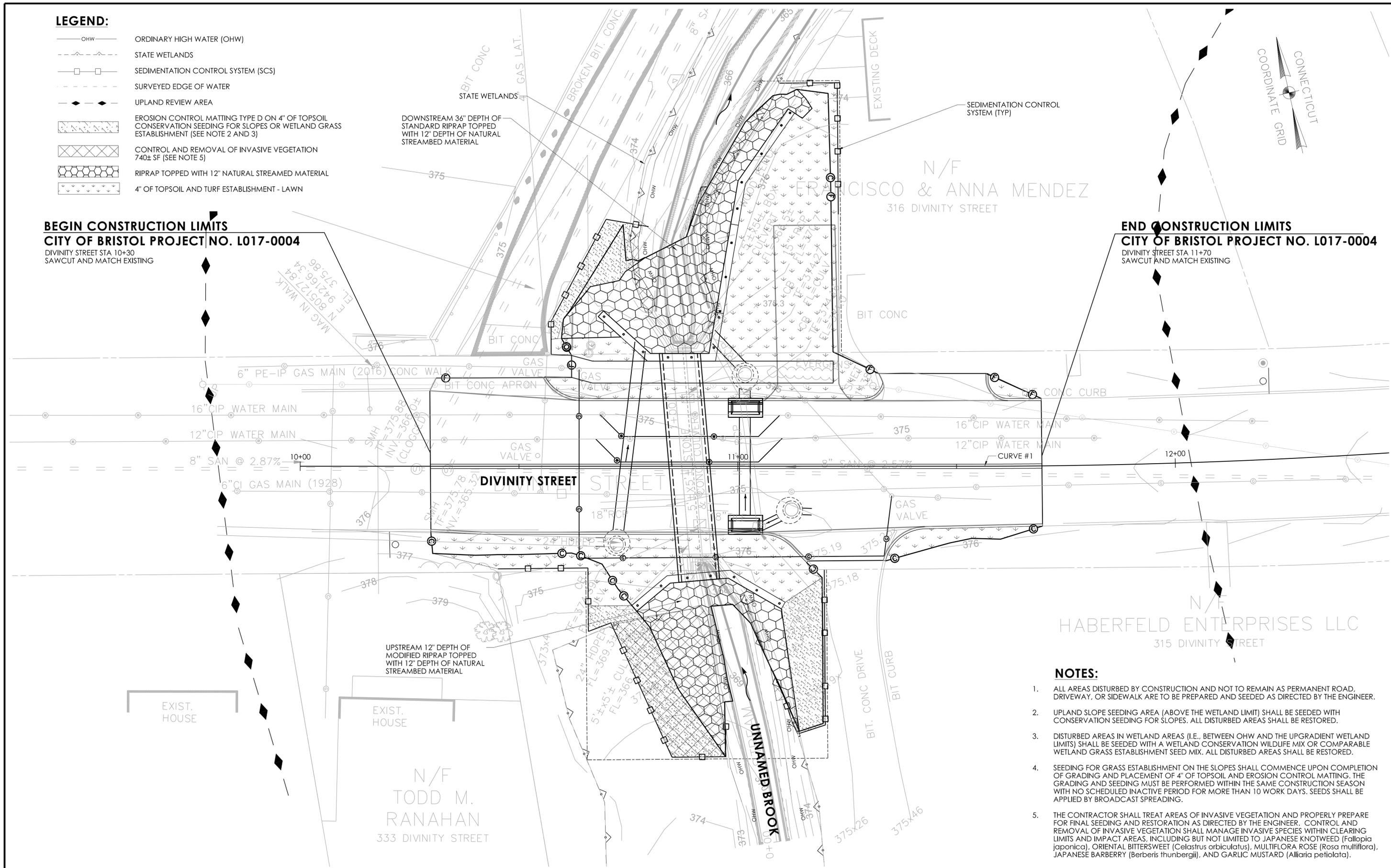
-  ORDINARY HIGH WATER (OHW)
-  STATE WETLANDS
-  SEDIMENTATION CONTROL SYSTEM (SCS)
-  SURVEYED EDGE OF WATER
-  UPLAND REVIEW AREA
-  EROSION CONTROL MATTING TYPE D ON 4" OF TOPSOIL CONSERVATION SEEDING FOR SLOPES OR WETLAND GRASS ESTABLISHMENT (SEE NOTE 2 AND 3)
-  CONTROL AND REMOVAL OF INVASIVE VEGETATION 740± SF (SEE NOTE 5)
-  RIPRAP TOPPED WITH 12" NATURAL STREAMBED MATERIAL
-  4" OF TOPSOIL AND TURF ESTABLISHMENT - LAWN

**BEGIN CONSTRUCTION LIMITS**  
**CITY OF BRISTOL PROJECT NO. L017-0004**

DIVINITY STREET STA 10+30  
 SAWCUT AND MATCH EXISTING

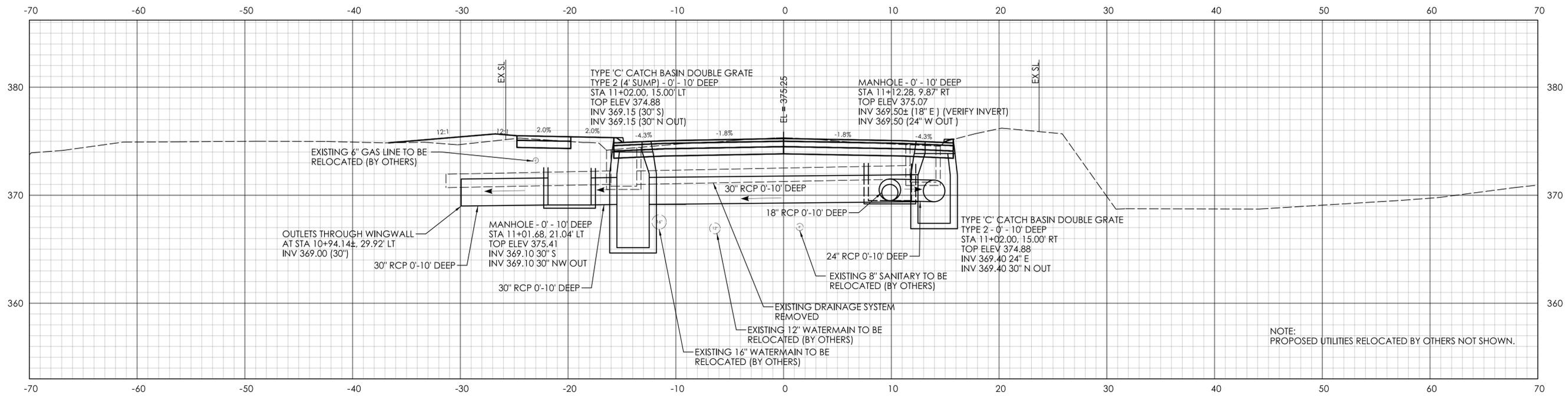
**END CONSTRUCTION LIMITS**  
**CITY OF BRISTOL PROJECT NO. L017-0004**

DIVINITY STREET STA 11+70  
 SAWCUT AND MATCH EXISTING

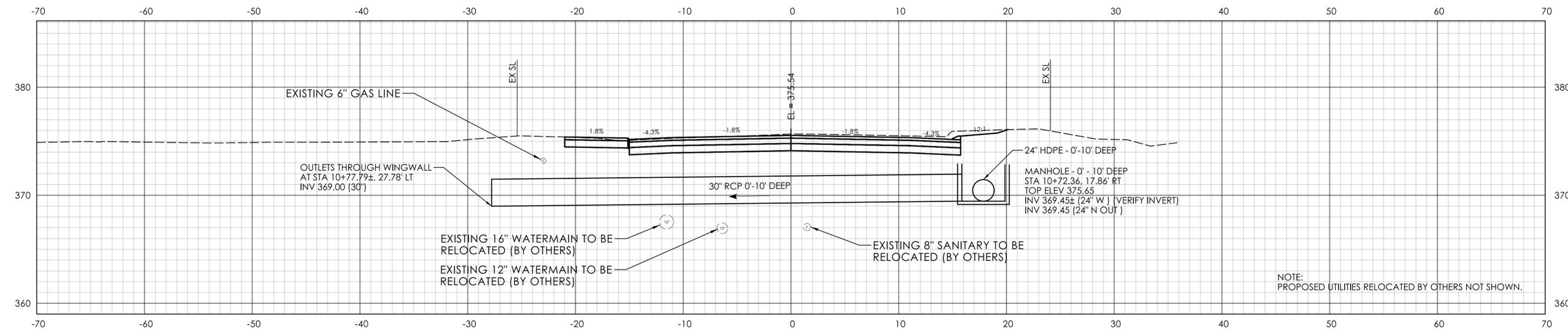


**NOTES:**

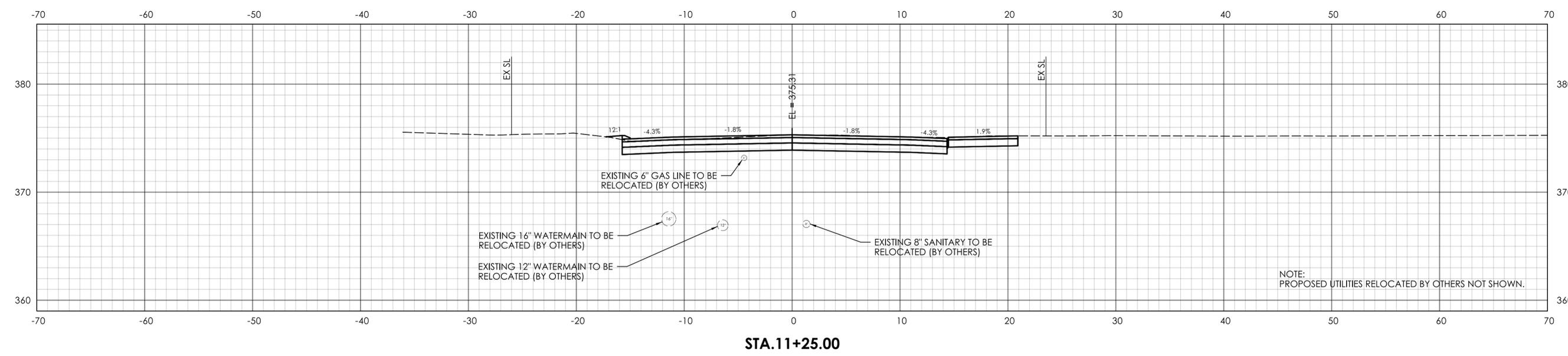
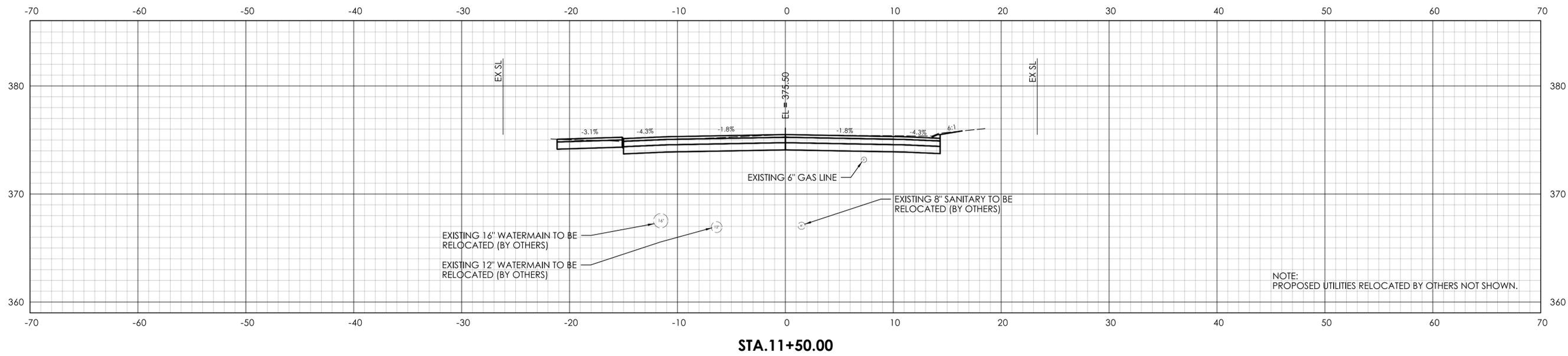
1. ALL AREAS DISTURBED BY CONSTRUCTION AND NOT TO REMAIN AS PERMANENT ROAD, DRIVEWAY, OR SIDEWALK ARE TO BE PREPARED AND SEEDING AS DIRECTED BY THE ENGINEER.
2. UPLAND SLOPE SEEDING AREA (ABOVE THE WETLAND LIMIT) SHALL BE SEEDING WITH CONSERVATION SEEDING FOR SLOPES. ALL DISTURBED AREAS SHALL BE RESTORED.
3. DISTURBED AREAS IN WETLAND AREAS (I.E., BETWEEN OHW AND THE UPGRADE WETLAND LIMITS) SHALL BE SEEDING WITH A WETLAND CONSERVATION WILDLIFE MIX OR COMPARABLE WETLAND GRASS ESTABLISHMENT SEED MIX. ALL DISTURBED AREAS SHALL BE RESTORED.
4. SEEDING FOR GRASS ESTABLISHMENT ON THE SLOPES SHALL COMMENCE UPON COMPLETION OF GRADING AND PLACEMENT OF 4" OF TOPSOIL AND EROSION CONTROL MATTING. THE GRADING AND SEEDING MUST BE PERFORMED WITHIN THE SAME CONSTRUCTION SEASON WITH NO SCHEDULED INACTIVE PERIOD FOR MORE THAN 10 WORK DAYS. SEEDS SHALL BE APPLIED BY BROADCAST SPREADING.
5. THE CONTRACTOR SHALL TREAT AREAS OF INVASIVE VEGETATION AND PROPERLY PREPARE FOR FINAL SEEDING AND RESTORATION AS DIRECTED BY THE ENGINEER. CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL MANAGE INVASIVE SPECIES WITHIN CLEARING LIMITS AND IMPACT AREAS, INCLUDING BUT NOT LIMITED TO JAPANESE KNOTWEED (*Fallopia japonica*), ORIENTAL BITTERSWEET (*Celastrus orbiculatus*), MULTIFLORA ROSE (*Rosa multiflora*), JAPANESE BARBERRY (*Berberis thunbergii*), AND GARLIC MUSTARD (*Alliaria petiolata*).

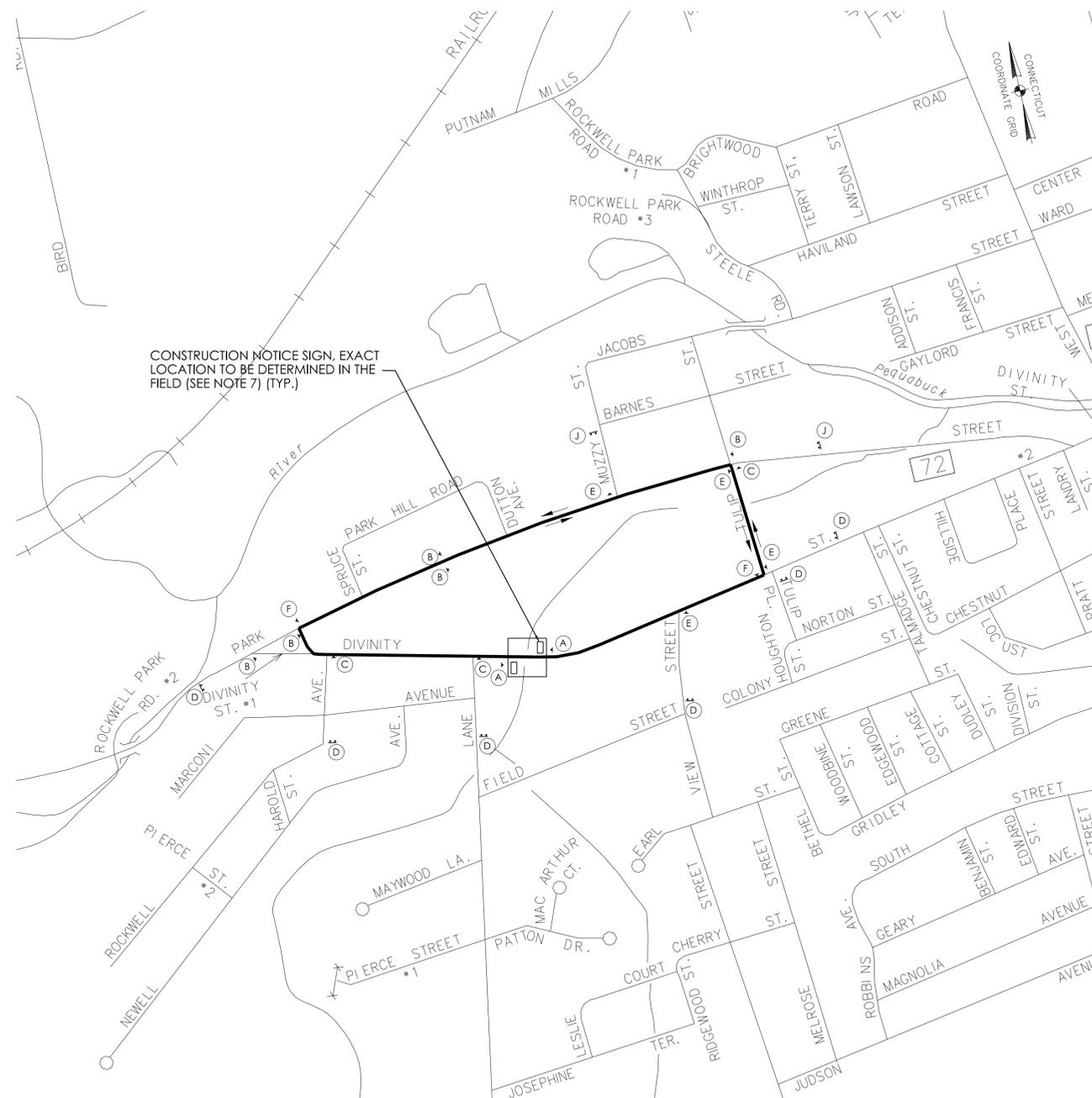


STA.11+00.00



STA.10+50.00





### MAINTENANCE AND PROTECTION OF TRAFFIC NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR SECTION 1.08 PROSECUTION AND PROGRESS AND ITEM NO. 0971001A MAINTENANCE AND PROTECTION OF TRAFFIC.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION. COORDINATE ACCESS WITH PAVING OPERATIONS SO THAT JOINTS ARE MINIMIZED.
- CONTRACTOR SHALL SUBMIT A SITE SPECIFIC ROADWAY CLOSURE PLAN ON A FOR REVIEW PRIOR TO START OF CONSTRUCTION WITH INDICATIONS OF CONSTRUCTION ACCESS POINTS AND ACCESS FOR DRIVEWAYS CONSIDERED.
- RELOCATION OF TEMPORARY TRAFFIC BARRIER REQUIRED FOR CONSTRUCTION OPERATIONS AND ACCESS TO THE WORK AREA SHALL NOT BE MEASURED FOR PAYMENT.
- CONTRACTOR SHALL ALLOW ACCESS BY UTILITY COMPANIES WITHIN WORK AREA FOR ANY UTILITY RELOCATION WORK.

### DETOUR NOTES

- ALL CONSTRUCTION SIGNING SHALL CONFORM TO THE STANDARDS IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE REQUIREMENTS OF THE CONNECTICUT DEPARTMENT OF TRANSPORTATION.
- LOCATIONS OF TEMPORARY SIGNS ARE APPROXIMATE AND SHALL BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER SO AS NOT TO CONFLICT WITH EXISTING PERMANENT SIGNS. EXISTING SIGNS IN CONFLICT WITH TEMPORARY SIGNS SHALL BE COVERED OR RELOCATED AS DIRECTED BY THE ENGINEER.
- UPON COMPLETION OF THE PROJECT, ALL EXISTING SIGNS AND PAVEMENT MARKINGS WHICH ARE REMOVED IN ADVANCE OF CONSTRUCTION SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER.
- TEMPORARY SIGNS AND OTHER TEMPORARY TRAFFIC PROTECTIVE DEVICES SHALL REMAIN IN PLACE AS SHOWN THROUGHOUT THE FULL DURATION OF CONSTRUCTION. UNIFORMED TRAFFIC PERSON SHALL BE REQUIRED WHEN DEVICES SHOWN ARE INSTALLED, RELOCATED, OR REMOVED.
- TRAFFIC SIGNS SHALL BE MOUNTED ON POSTS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL IMPLEMENT THE DETOUR PLAN AND MAINTENANCE AND PROTECTION OF TRAFFIC PLAN BEFORE THE START OF CULVERT REPLACEMENT.
- TWO WEEKS PRIOR TO INITIATING DETOUR, INSTALL CONSTRUCTION NOTICE SIGN ON DIVINITY STREET IN BOTH DIRECTIONS IN VICINITY OF CULVERT. THESE SIGNS SHALL BE REMOVED ONCE DETOUR IS IN EFFECT.
- ALL CONSTRUCTION SIGNS AND SIGN POSTS ARE TO BE REMOVED UPON COMPLETION OF CULVERT REPLACEMENT AND THE ROADWAY IS RE-OPENED TO TRAFFIC.
- CONTRACTOR TO CONTACT THE FOLLOWING ENTITIES TWO (2) WEEKS PRIOR TO IMPLEMENTING THE DETOUR: CITY OF BRISTOL POLICE AND FIRE DEPARTMENTS, ENGINEERING DEPARTMENT, AND BRISTOL PUBLIC SCHOOLS.
- ALL DETOUR SIGNS, ADVANCED CONSTRUCTION SIGNS, AND ROADWAY CLOSURE SIGNS TO BE PAID FOR UNDER THE ITEM NO. 1220027 "CONSTRUCTION SIGNS".

### SEQUENCE OF CONSTRUCTION

- IMPLEMENT DETOUR PLAN.
- CLOSE DIVINITY STREET AT THE CULVERT CROSSING. MAINTAIN ACCESS TO PRIVATE PROPERTIES.
- CONSTRUCT CULVERT CROSSING.
- UPON COMPLETION OF CULVERT CONSTRUCTION, ROADWAY TO BE RE-OPENED TO TRAFFIC IN ACCORDANCE WITH ITEM 0971001A "MAINTENANCE AND PROTECTION OF TRAFFIC".

### CONSTRUCTION SIGN LEGEND

PLAN DESIGNATION	MESSAGE	SIZE	CTDOT DESIGNATION
(A)		36" x 36"	(80-9933)
(B)		30" x 10" 30" x 24"	(80-9919) (80-9710)
(C)		30" x 10" 30" x 24"	(80-9919) (80-9710)
(D)		60" x 30"	(80-9928)
(E)		30" x 10" 30" x 24"	(80-9919) (80-9710)
(F)		24" x 18"	(80-9708)
(H)		48"	(31-0557)*
(I)		48" x 30"	(80-9080)*
(J)		60" x 30"	(80-9928)
CONSTRUCTION NOTICE SIGN		72" x 48"	(80-9079)
(K)		36" x 36"	(80-9603)
(L)		48" x 42"	(31-1906)
(M)		30" x 24"	(80-1613, 16-M)
(N)		36" x 18"	(80-9611)
(O)		30" x 18"	(80-9076)

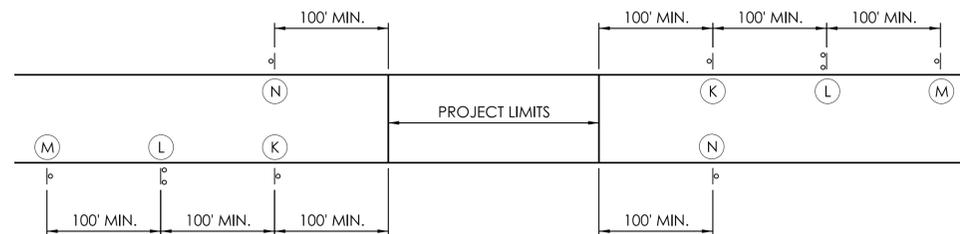
\* SIGN TO HAVE BARRICADE WARNING LIGHTS-HIGH INTENSITY.

### LEGEND

- ① CONSTRUCTION SIGN
- ▮ CONSTRUCTION BARRICADE TYPE III
- ▮ CONSTRUCTION BARRICADE DETECTABLE
- CONSTRUCTION NOTICE SIGN
- DETOUR ROUTE
- DETOUR DIRECTION
- ▬ TEMPORARY TRAFFIC BARRIER

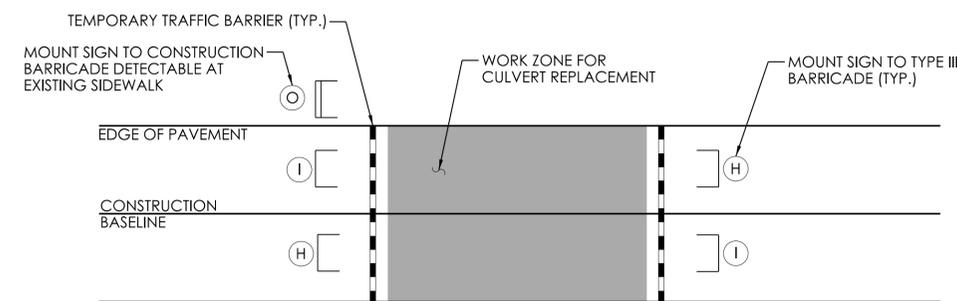
### DETOUR PLAN

SCALE: 1" = 400'



### ADVANCED CONSTRUCTION SIGN DETAIL

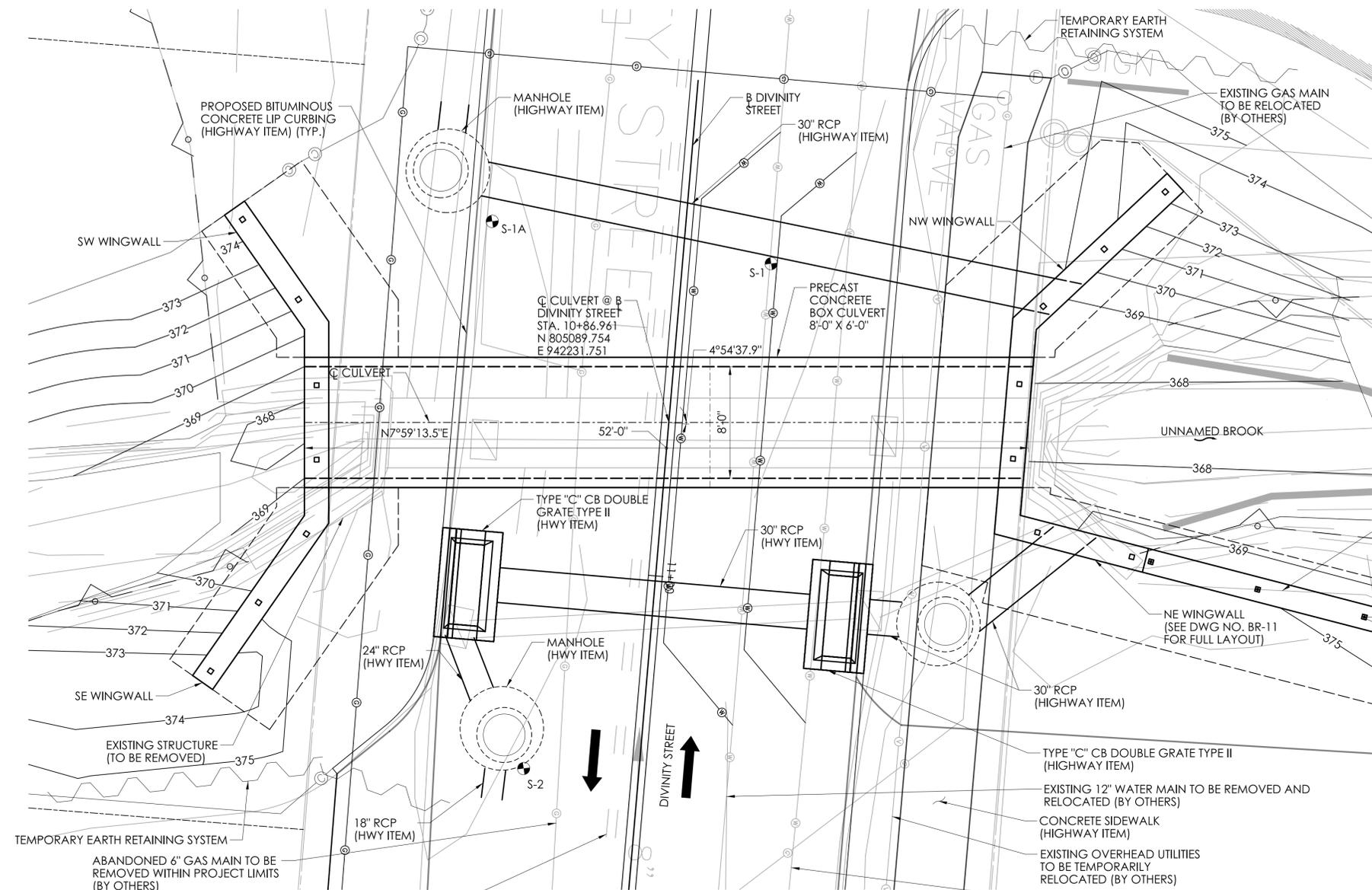
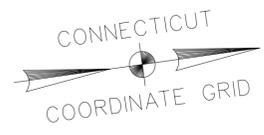
(NOT TO SCALE)



### ROADWAY CLOSURE DETAIL

(NOT TO SCALE)





**BOX CULVERT GENERAL PLAN**  
SCALE: 1" = 5'

**NOTICE TO BRIDGE INSPECTORS**

THE DEPARTMENT'S BRIDGE SAFETY PROCEDURES REQUIRE THIS BRIDGE TO BE INSPECTED FOR, BUT NOT LIMITED TO, ALL APPROPRIATE COMPONENTS INDICATED IN THE GOVERNING MANUALS FOR BRIDGE INSPECTION. ATTENTION MUST BE GIVEN TO INSPECTING THE FOLLOWING SPECIAL COMPONENTS AND DETAILS. (THE LISTING OF COMPONENTS FOR SPECIFIC ATTENTION SHALL NOT BE CONSTRUED TO REDUCE THE IMPORTANCE OF ANY OTHER COMPONENT OF THE STRUCTURE.) THE FREQUENCY OF INSPECTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE GOVERNING MANUALS FOR BRIDGE INSPECTION, UNLESS OTHERWISE DIRECTED BY THE MANAGER OF THE BRIDGE SAFETY AND EVALUATION.

COMPONENT OR DETAIL	DRAWING NUMBER REFERENCE
FOLLOW NORMAL INSPECTION PROCEDURES	-

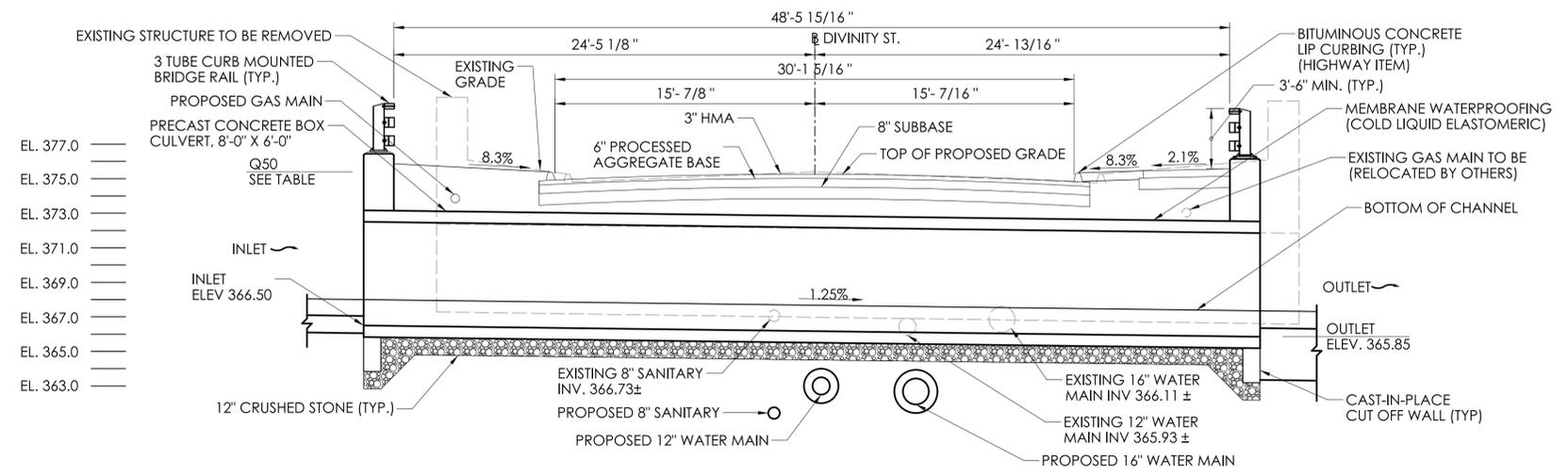
**ESTIMATED SHIPPING DATA**

MEMBER	SHIPPING HEIGHT	SHIPPING LENGTH	SHIPPING WIDTH	SHIPPING WEIGHT
MAXIMUM CULVERT UNIT	7.33 FT	6.00 FT	9.33 FT	18400 LBS

**HYDRAULIC DATA**

DRAINAGE AREA	0.77 ± SQ MILE
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	705 CFS
AVERAGE DAILY FLOW ELEVATION	368.48 FT ±
50-YR UPSTREAM DESIGN WATER SURFACE ELEVATION	375.39 FT ±
50-YR DOWNSTREAM DESIGN WATER SURFACE ELEVATION	370.70 FT ±

**LEGEND:**  
 SOIL BORING



**PROPOSED CULVERT SECTION**  
SECTION ALONG C. OF CULVERT AT STA. 10+86.691  
SCALE: 1" = 5'

- NOTES:**
- STRUCTURE DIMENSIONS ARE BASED ON 8" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.
  - REMOVAL OF EXISTING STRUCTURE TO BE PAID FOR UNDER ITEM 0974000 REMOVAL OF EXISTING MASONRY.
  - FOR CULVERT CONSTRUCTION STAGING AND WATER HANDLING SEE DWGS. MDS-02 AND MPT-01.

**GENERAL NOTES:**

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024).

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION (2017), WITH INTERIM SPECIFICATIONS, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003), AS UPDATED THROUGH FEBRUARY 2024.

MATERIAL STRENGTHS:  
 CONCRETE:  
 -CLASS PCC03340  $f_c = 3,000$  PSI  
 -PRECAST CONCRETE  $f_c = 5,000$  PSI

THE CONCRETE STRENGTH,  $f_c$ , USED IN THE DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 6.01 - CONCRETE FOR STRUCTURES, AND M.03 - PORTLAND CEMENT CONCRETE.

REINFORCEMENT:  
 -ASTM A615 GRADE 60  $f_y = 60,000$  PSI

LIVE LOAD: HL-93. LEGAL AND PERMIT VEHICLES

FUTURE PAVING ALLOWANCES: NONE

HMA OVERLAY SHALL CONSIST OF:  
 3" HMA S0.5 TRAFFIC LEVEL 2 ON  
 6" PROCESSED AGGREGATE BASE ON  
 8" SUBBASE  
 MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC).

DIMENSIONS: WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.

EXISTING DIMENSIONS: DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.

UTILITIES: THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE PROJECT LIMITS: CITY OF BRISTOL WATER, CITY OF BRISTOL SEWER, EVERSOURCE GAS, EVERSOURCE ELECTRIC DISTRIBUTION, COMCAST CABLE, FRONTIER COMMUNICATION. THE CONTRACTOR SHALL COORDINATE ALL WORK RELATED TO UTILITY RELOCATION WITH THE RESPECTIVE UTILITY COMPANIES.

TRAFFIC: ALL WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 1.08 "PROSECUTION AND PROGRESS" AND ITEM 0971001A "MAINTENANCE AND PROTECTION OF TRAFFIC".

DEMOLITION: THE CONTRACTOR SHALL SUBMIT DEMOLITION PROCEDURES PRIOR TO THE REMOVAL OF THE EXISTING CULVERT.

**CONCRETE NOTES:**

EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" X 1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE 2 INCHES COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS - GALVANIZED".

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSIONS JOINT FILLER SHALL BE INCLUDED IN THE COST FOR ITEM "1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES".

CONSTRUCTION JOINT: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON PLANS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

**PRECAST CONCRETE NOTES:**

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024) AND SPECIAL PROVISIONS, "8' X 6' PRECAST CONCRETE BOX CULVERT".

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003), AS UPDATED THROUGH FEBRUARY 2024.

RATINGS SPECIFICATIONS: THE MANUAL FOR BRIDGE EVALUATION (AASHTO LRFR) SECOND EDITION-2010 WITH THE LATEST INTERIMS AND CTDOT BRIDGE LOAD RATING MANUAL (MARCH 29, 2018 REVISION).

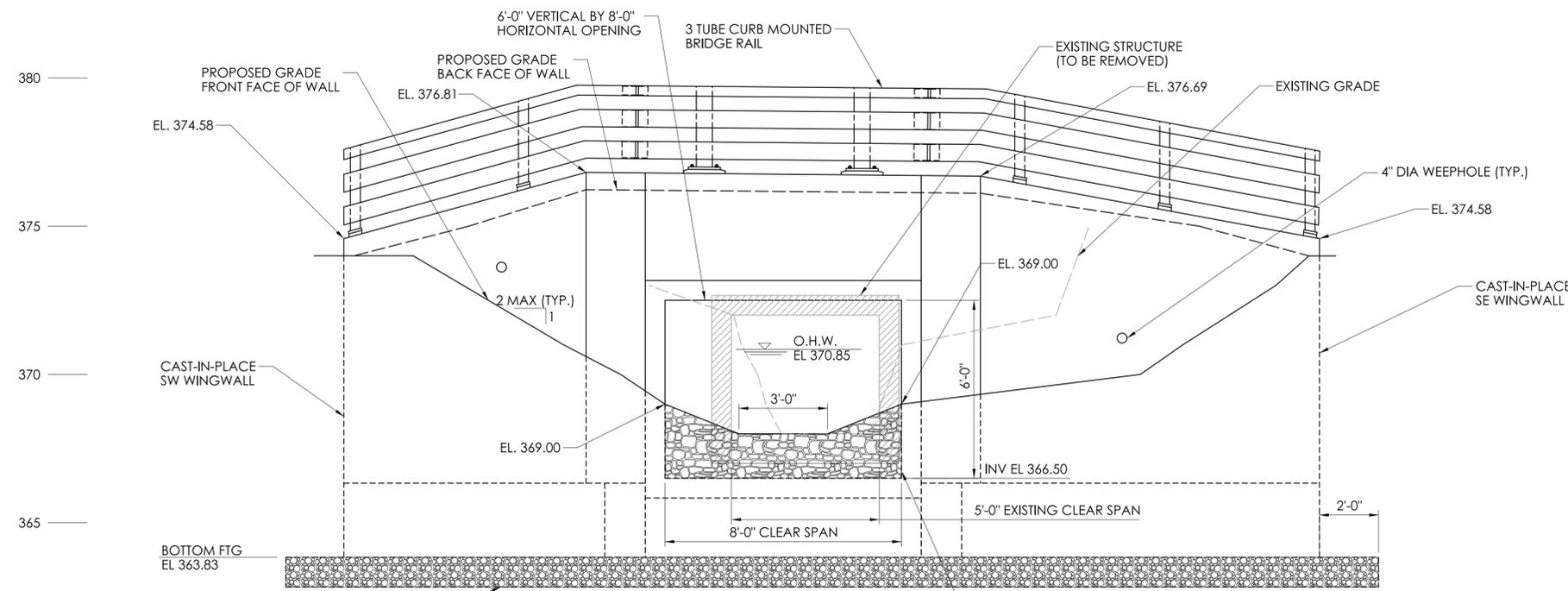
MATERIAL PROPERTIES: THE CONCRETE MIX FOR PRECAST BOX CULVERT UNITS, CUT-OFF WALLS, AND RETURN WALLS SHALL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI, REINFORCEMENT (ASTM A615, GRADE 60):  $f_y = 60$  KSI.

REINFORCEMENT: ALL STEEL REINFORCING BARS IN BOX CULVERT UNITS, CUT-OFF WALLS, AND RETURN WALLS SHALL CONFORM TO ASTM A615, GRADE 60 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS 1.

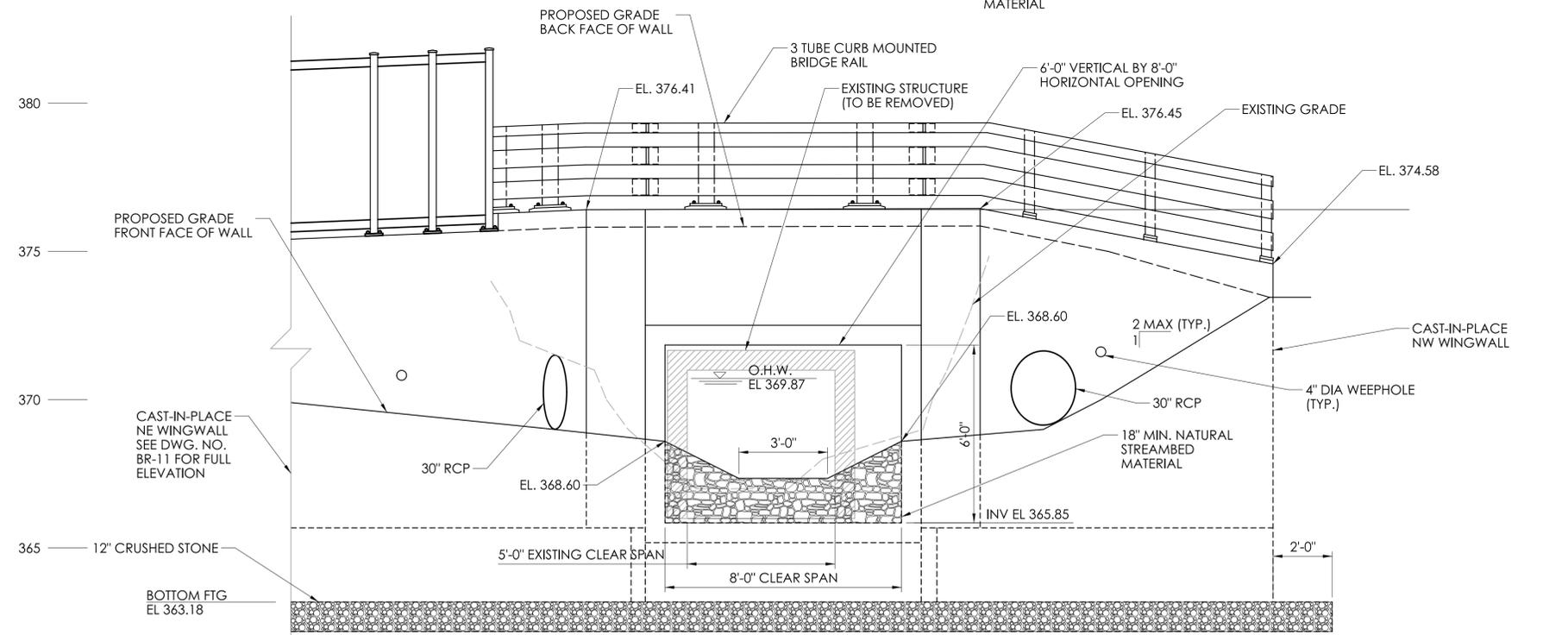
THE FIRST DIMENSION FOR THE BOX CULVERT IS WIDTH. SECOND DIMENSION IS HEIGHT.

CONCRETE COVER: REINFORCEMENT IN PRECAST CONCRETE CUT-OFF WALLS AND RETURN WALLS SHALL HAVE THE MINIMUM COVER INDICATED ON THE PLANS, COVER IN THE PRECAST CONCRETE BOX CULVERT SHALL BE 2".

THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES, WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.



**INLET ELEVATION**  
 SCALE: 3/8" = 1'-0"



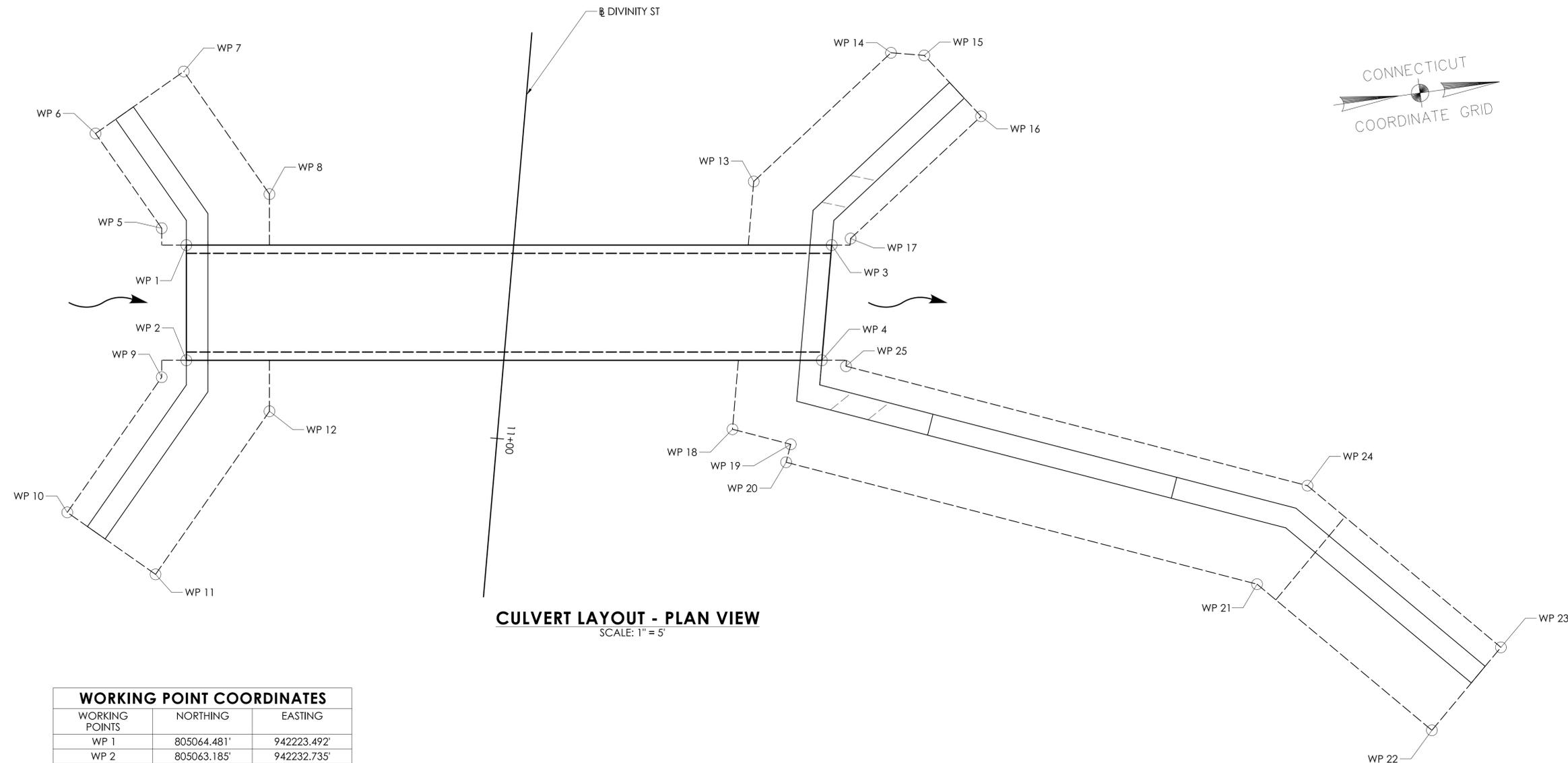
**OUTLET ELEVATION**  
 SCALE: 3/8" = 1'-0"

**NATURAL STREAMBED MATERIAL NOTES:**

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING EXISTING STRUCTURE REMOVAL AND NEW STRUCTURE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED TO THE DEPTH SHOWN ON THE PLANS. AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL"
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL".
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

THE FOLLOWING PAY ITEMS AND CONCRETE CLASS ARE REQUIRED FOR CAST-IN-PLACE CONCRETE BRIDGE COMPONENTS:

ITEM	BRIDGE COMPONENTS	PCC CLASS
ABUTMENT AND WALL CONCRETE	HEADWALLS, WINGWALL STEMS	PCC03340
FOOTING CONCRETE	CUT-OFF WALLS, RETURN WALLS, WINGWALL FOOTINGS	PCC03340



**CULVERT LAYOUT - PLAN VIEW**  
SCALE: 1" = 5'

WORKING POINT COORDINATES		
WORKING POINTS	NORTHING	EASTING
WP 1	805064.481'	942223.492'
WP 2	805063.185'	942232.735'
WP 3	805116.374'	942230.774'
WP 4	805114.283'	942239.905'
WP 5	805062.691'	942221.858'
WP 6	805058.436'	942213.513'
WP 7	805066.228'	942209.532'
WP 8	805071.740'	942220.342'
WP 9	805061.014'	942233.813'
WP 10	805051.898'	942243.593'
WP 11	805058.299'	942249.559'
WP 12	805069.295'	942237.761'
WP 13	805110.819'	942224.792'
WP 14	805123.309'	942216.013'
WP 15	805125.952'	942216.600'
WP 16	805129.833'	942222.122'
WP 17	805117.970'	942230.460'
WP 18	805106.322'	942244.428'
WP 19	805110.837'	942246.295'
WP 20	805110.264'	942247.681'
WP 21	805146.761'	942262.776'
WP 22	805159.174'	942276.470'
WP 23	805165.657'	942270.593'
WP 24	805151.922'	942255.442'
WP 25	805116.163'	942240.653'

**NOTES:**

1. STRUCTURE DIMENSIONS ARE BASED ON AN 8" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.

**BORING S-1**

Driller: K. Smith		Connecticut DOT Boring Report Format		Hole No.: S-1		
Inspector: T. Ta		Town: Bristol		Stat./Offset:		
Engineer: A. McCaulliffe		Project No.: 2019-0117		Nothing:		
Start Date: 7-23-20		Route No.: Divinity Street		Easting:		
Finish Date: 7-23-20		Bridge No.:		Surface Elevation: 375		
Project Description: Replacement of Divinity Street Culvert						
Casing Size/Type: 4-in. Casing		Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:		
Hammer Wt.: 300lb Fall: 30in.		Hammer Wt.: 140lb Fall: 30in.				
Groundwater Observations: 8ft						
Depth (ft)	SAMPLES					Elevation (ft)
	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Roc. (ft.)	RCD %	
0						375
1	S-1	24 40 40 43	24	18		Asphalt (4') Brown c-f SAND, some c-f gravel, little silt
2	S-2	45 57 60 45	24	8		
3	S-3	7 16 11 8	24	8		
4	S-4	6 7 7 50/3"	21	8		
5						370
10						365
15						360
20						355
25						350
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%						
Total Penetration in Earth: 9ft		Rock: 0ft		NOTES: Drilled into 12 inch water line at approximately 9 feet		Sheet 1 of 1
No. of Soil Samples: 4		No. of Core Runs: 0				SM-001-M REV. 1/02

**BORING S-1A**

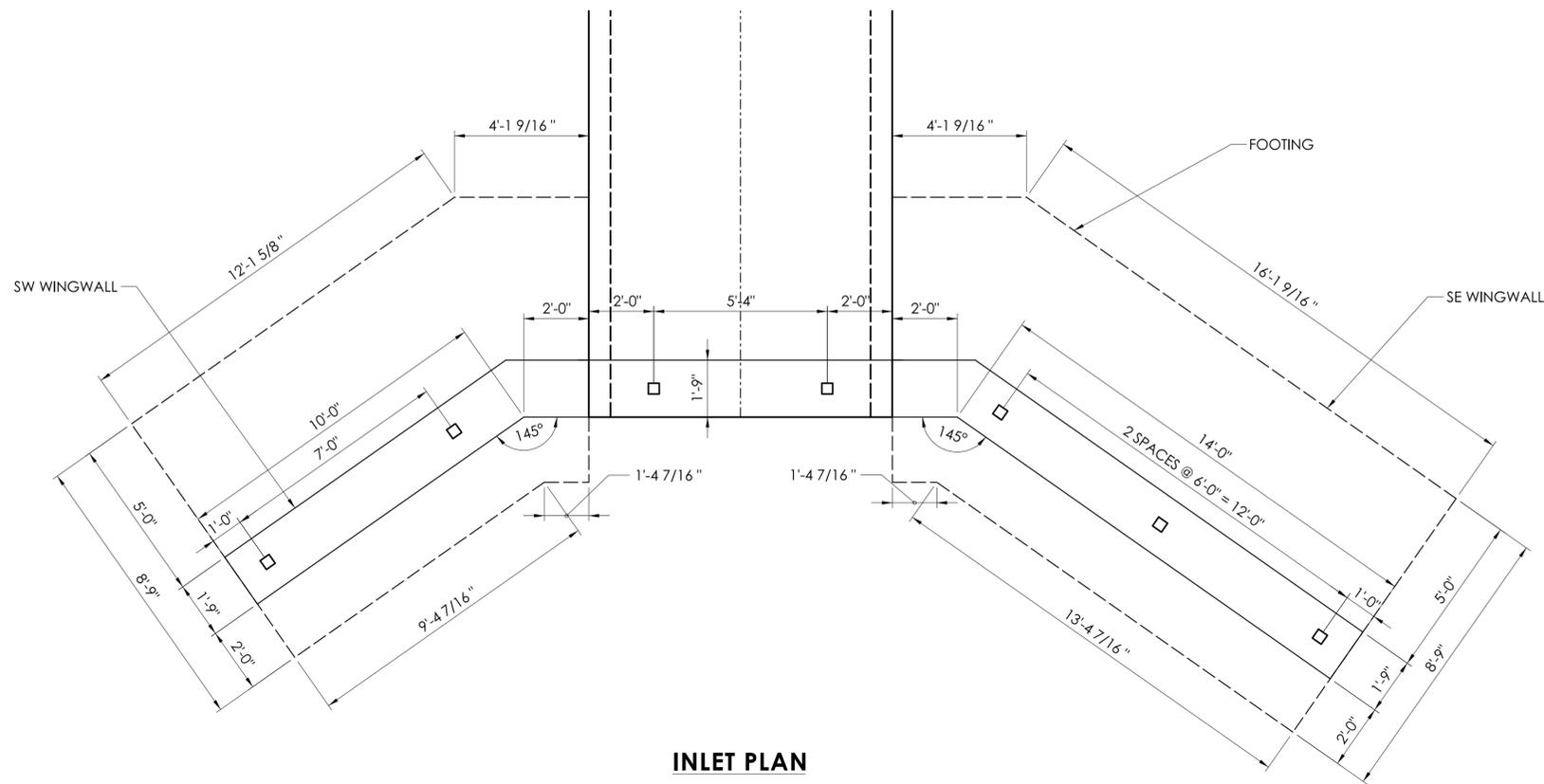
Driller: K. Smith		Connecticut DOT Boring Report Format		Hole No.: S-1A		
Inspector: N. Johnson		Town: Bristol		Stat./Offset:		
Engineer: A. McCaulliffe		Project No.: 2019-0117		Nothing:		
Start Date: 7-24-20		Route No.: Divinity Street		Easting:		
Finish Date: 7-24-20		Bridge No.:		Surface Elevation: 375		
Project Description: Replacement of Divinity Street Culvert						
Casing Size/Type: 4-in. Casing		Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:		
Hammer Wt.: 300lb Fall: 30in.		Hammer Wt.: 140lb Fall: 30in.				
Groundwater Observations: 8ft						
Depth (ft)	SAMPLES					Elevation (ft)
	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Roc. (ft.)	RCD %	
0						375
1	S-1	16 10 6 5	24	12		Asphalt (4') Brown c-f SAND, trace m-f gravel, trace silt
2	S-2	4 4 5 4	24	4		
3	S-3	14 5 3 2	24	6		
4	S-4	18 52 105 85	24	22		
5						370
10						365
15						360
20						355
25						350
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%						
Total Penetration in Earth: 19ft		Rock: 0ft		NOTES:		Sheet 1 of 1
No. of Soil Samples: 6		No. of Core Runs: 0				SM-001-M REV. 1/02

**BORING S-2**

Driller: K. Smith		Connecticut DOT Boring Report Format		Hole No.: S-2		
Inspector: T. Ta		Town: Bristol		Stat./Offset:		
Engineer: A. McCaulliffe		Project No.: 2019-0117		Nothing:		
Start Date: 7-23-20		Route No.: Divinity Street		Easting:		
Finish Date: 7-23-20		Bridge No.:		Surface Elevation: 375		
Project Description: Replacement of Divinity Street Culvert						
Casing Size/Type: 4-in. Casing		Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:		
Hammer Wt.: 300lb Fall: 30in.		Hammer Wt.: 140lb Fall: 30in.				
Groundwater Observations: 8ft						
Depth (ft)	SAMPLES					Elevation (ft)
	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Roc. (ft.)	RCD %	
0						375
1	S-1	65 45 32 25	24	24		Asphalt (4') Brown c-f SAND, little c-f gravel, little silt
2	S-2	14 14 10 7	24	10		
3	S-3	11 13 8 5	24	3		
4	S-4	5 4 7 14	24	0		
5						370
10						365
15						360
20						355
25						350
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%						
Total Penetration in Earth: 15.67ft		Rock: 4.83ft		NOTES:		Sheet 1 of 1
No. of Soil Samples: 7		No. of Core Runs: 0				SM-001-M REV. 1/02

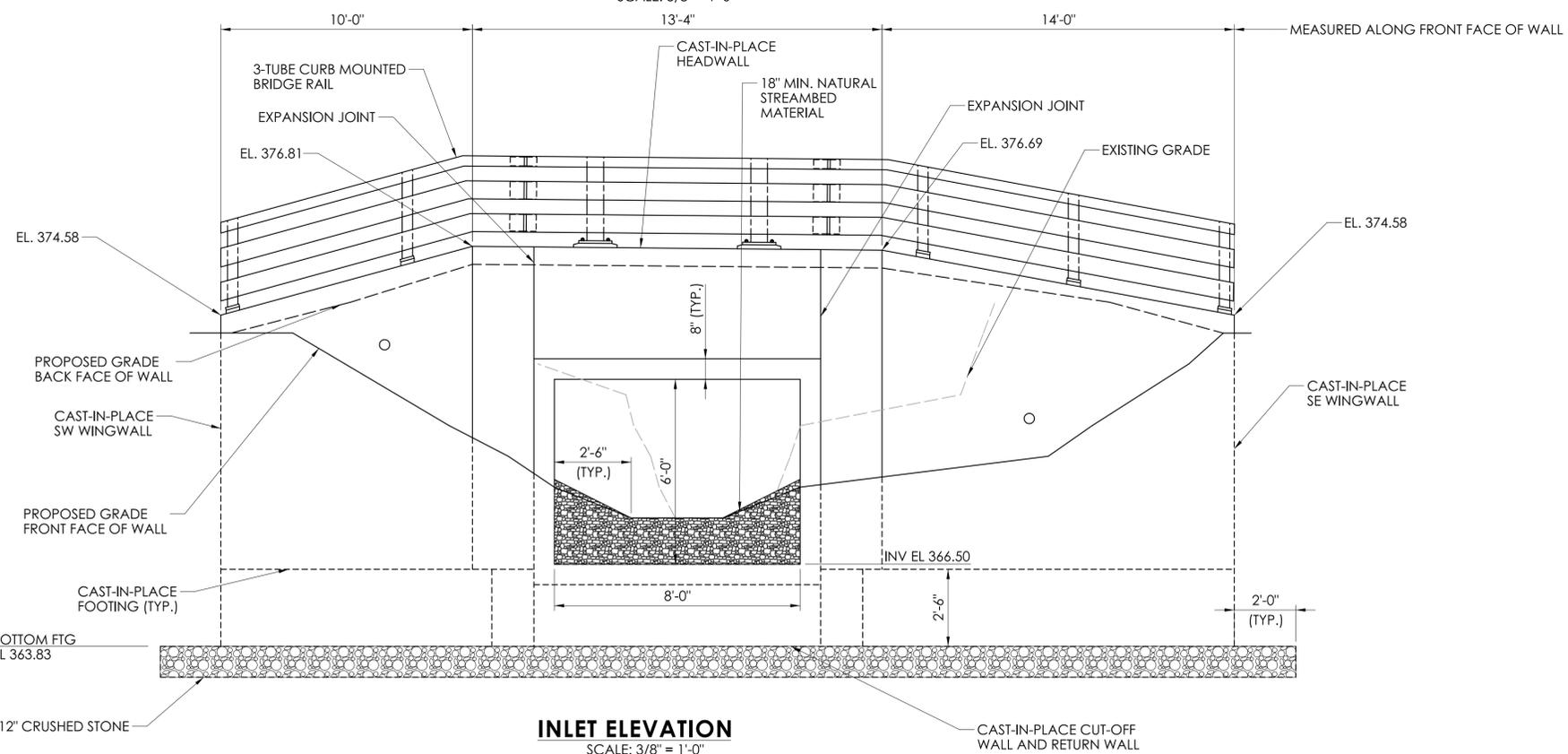
**BORING S-3**

Driller: K. Smith		Connecticut DOT Boring Report Format		Hole No.: S-3		
Inspector: T. Ta		Town: Bristol		Stat./Offset:		
Engineer: A. McCaulliffe		Project No.: 2019-0117		Nothing:		
Start Date: 7-24-20		Route No.: Divinity Street		Easting:		
Finish Date: 7-24-20		Bridge No.:		Surface Elevation: 375		
Project Description: Replacement of Divinity Street Culvert						
Casing Size/Type: 4-in. Casing		Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:		
Hammer Wt.: 300lb Fall: 30in.		Hammer Wt.: 140lb Fall: 30in.				
Groundwater Observations: 8ft						
Depth (ft)	SAMPLES					Elevation (ft)
	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (ft.)	Roc. (ft.)	RCD %	
0						375
1	S-1	2 5 6 13	24	8		Topsoil (3') Grayish brown c-f SAND, some silt, trace f-gravel
2	S-2	11 11 8 6	24	4		
3	S-3	12 11 14 13	24	0		
4	S-4	8 7 4 4	24	4		
5						370
10						365
15						360
20						355
25						350
30						345
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%						
Total Penetration in Earth: 27ft		Rock: 2ft		NOTES:		Sheet 1 of 1
No. of Soil Samples: 8		No. of Core Runs: 0				SM-001-M REV. 1/02



**INLET PLAN**

SCALE: 3/8" = 1'-0"



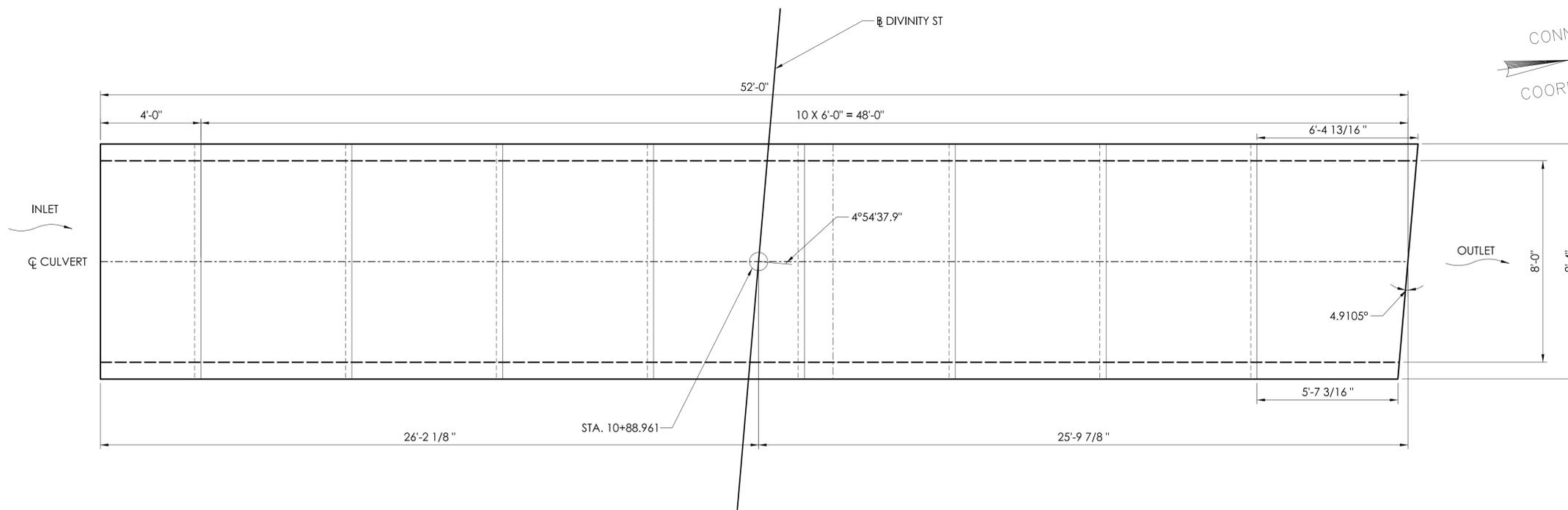
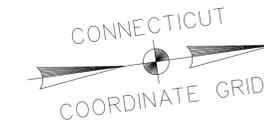
**INLET ELEVATION**

SCALE: 3/8" = 1'-0"

**NOTES:**

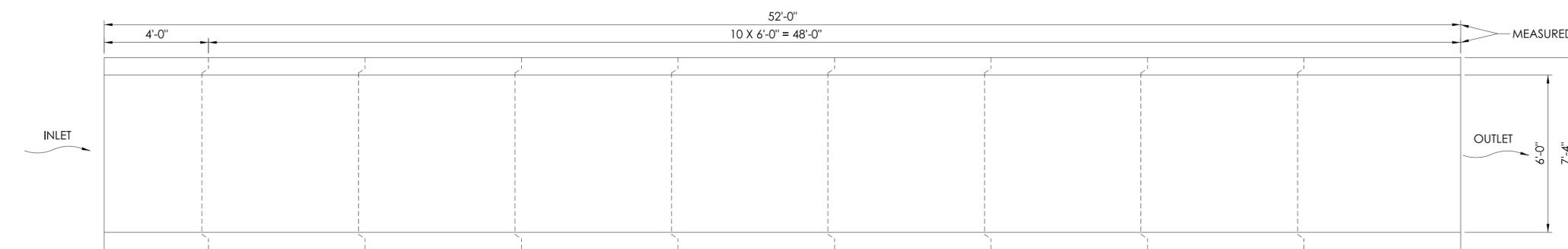
1. REFER TO DWG BR-04 FOR LAYOUT OF WORKING POINTS.
2. PROVIDE 1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES, FULL HEIGHT OF WINGWALL, TYP. AT EXPANSION JOINT.
3. STRUCTURE DIMENSIONS ARE BASED ON AN 8" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.





**CULVERT LAYOUT - PLAN VIEW**

SCALE: 3/8" = 1'

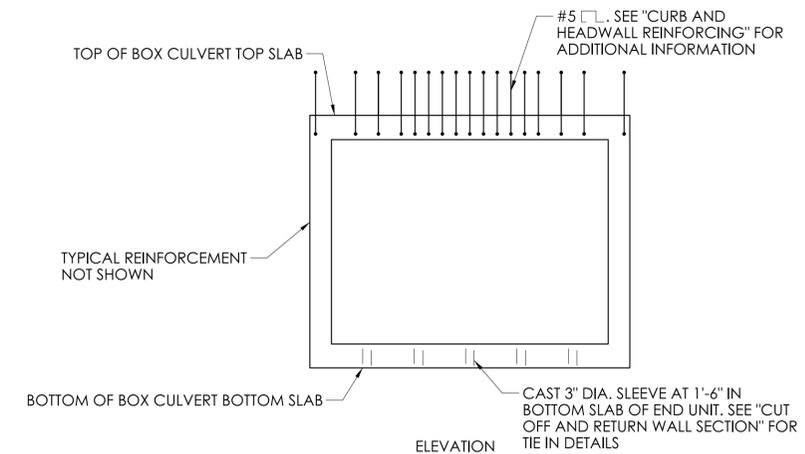
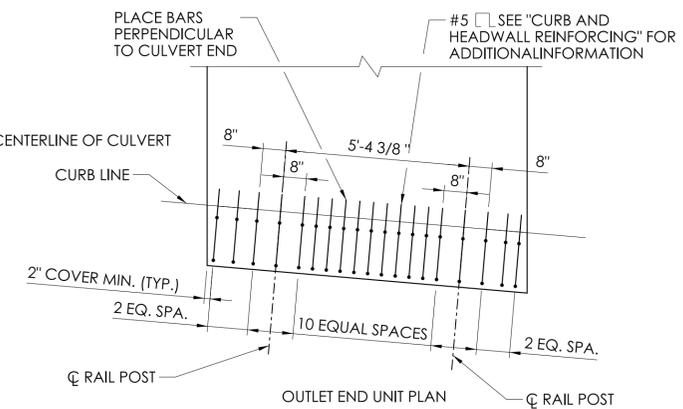
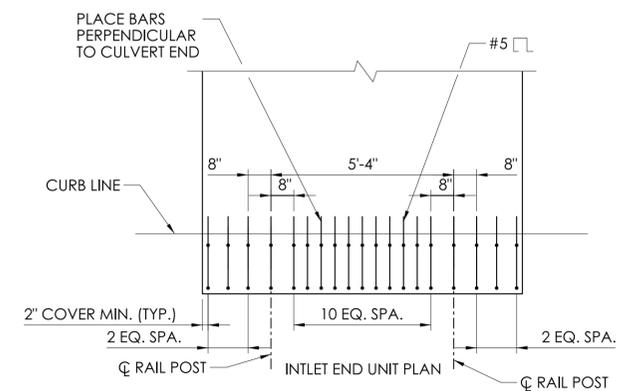


**CULVERT LAYOUT - ELEVATION VIEW**

SCALE: 3/8" = 1'

**NOTES:**

1. FOR STAGING DETAILS, SEE DWGS. MDS-02 AND MPT-01
2. STRUCTURE DIMENSIONS ARE BASED ON 8" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.

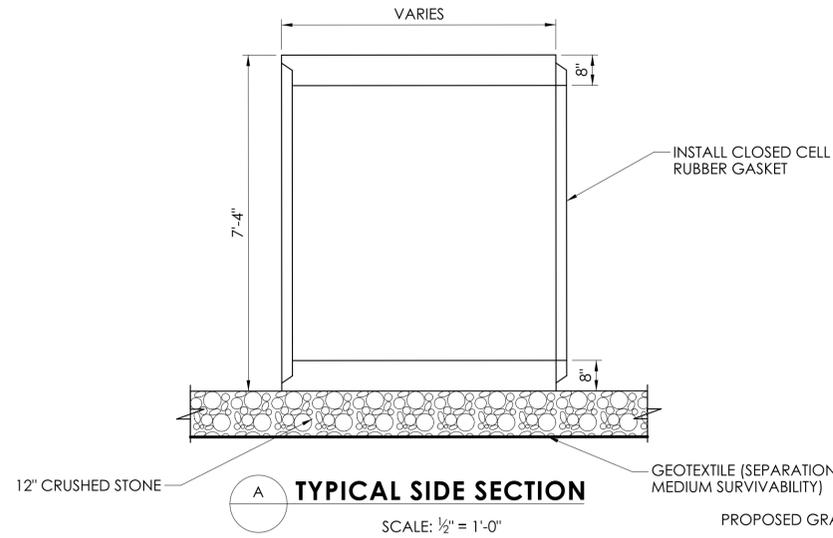
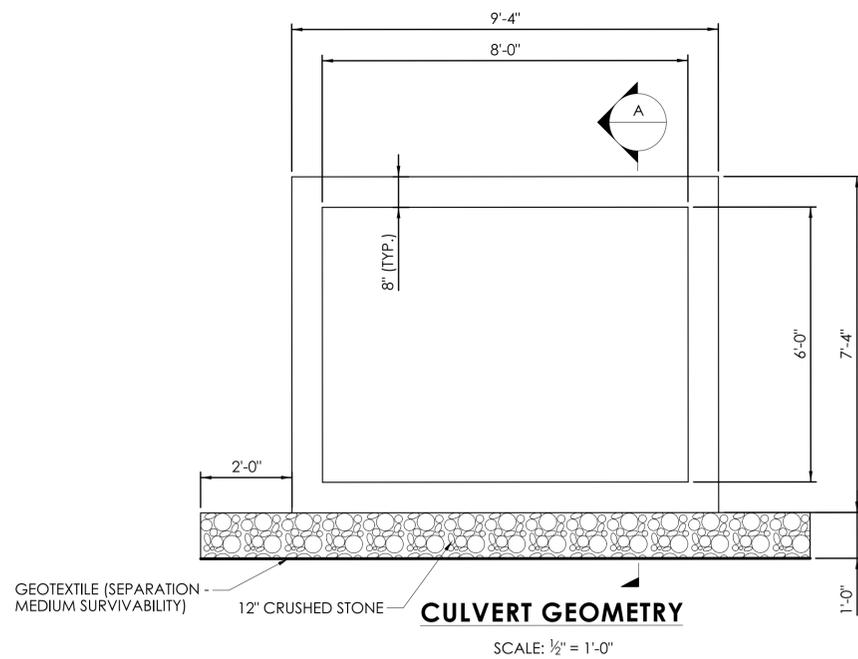


**CULVERT END UNIT DETAILS**

SCALE: 3/8" = 1'-0"

DESIGNER/DRAFTER: ZMS	CHECKED BY: JGC	SCALE AS NOTED	SIGNATURE/ BLOCK:	PROJECT NUMBER: L017-0004	PROJECT DESCRIPTION: REPLACEMENT OF DIVINITY STREET CULVERT OVER UNNAMED BROOK	DRAWING NO. BR-08
				TOWN(S): BRISTOL	DRAWING TITLE: PRECAST BOX CULVERT LAYOUT PLAN	SHEET NO. 04.08





GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY)

12" CRUSHED STONE

**CULVERT GEOMETRY**

SCALE: 1/2" = 1'-0"

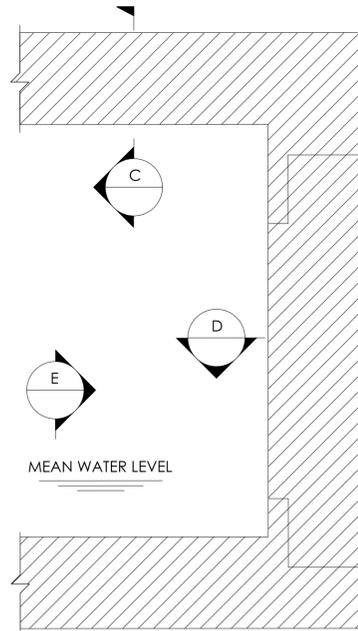
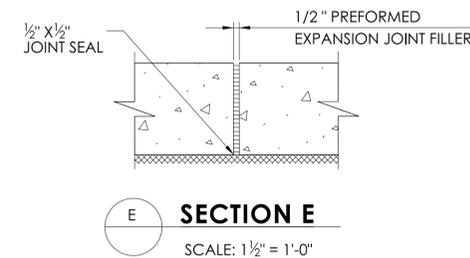
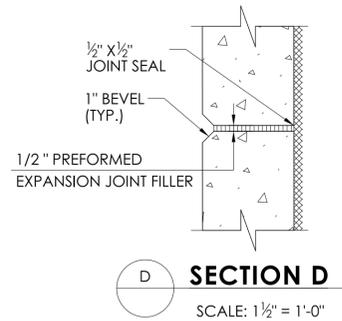
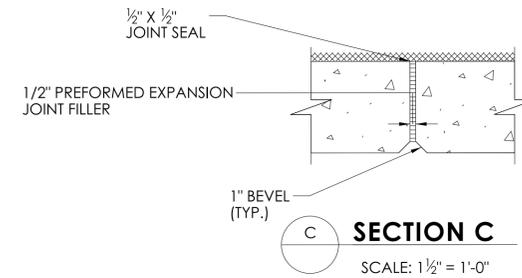
12" CRUSHED STONE

**TYPICAL SIDE SECTION**

SCALE: 1/2" = 1'-0"

INSTALL CLOSED CELL RUBBER GASKET

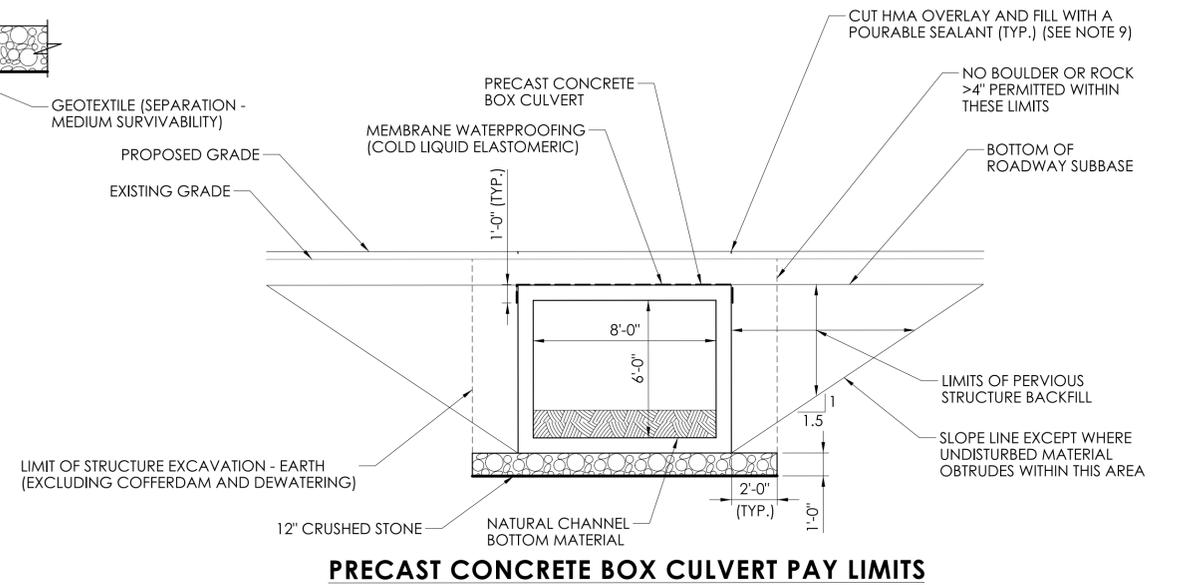
GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY)



1/2" PREFORMED EXPANSION JOINT FILLER

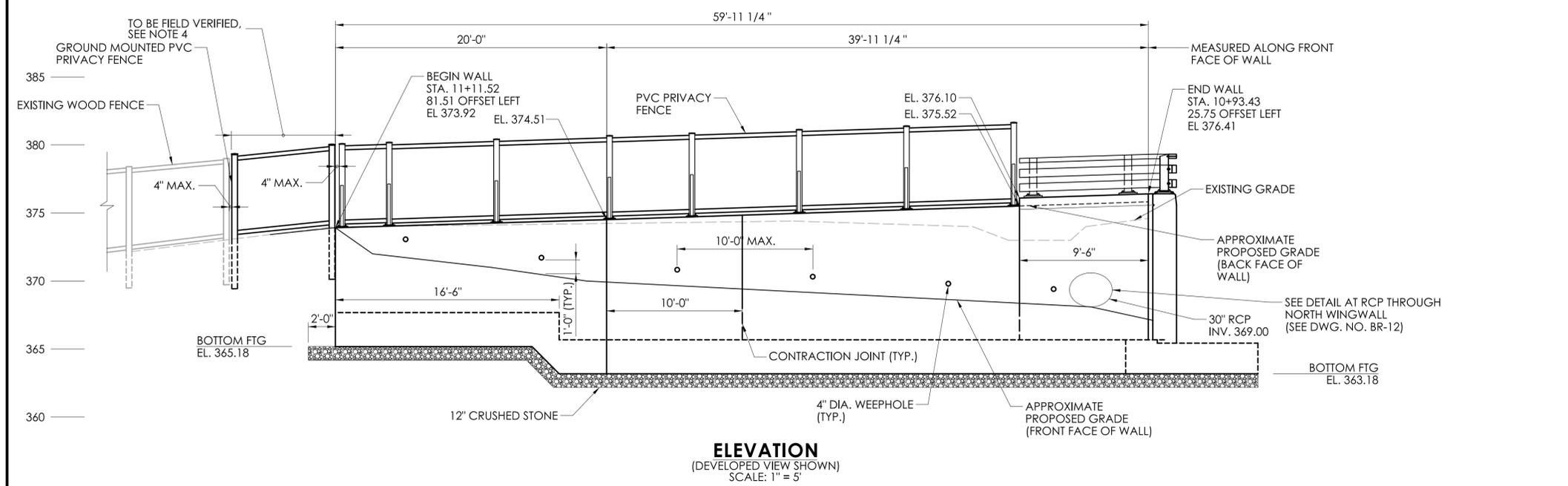
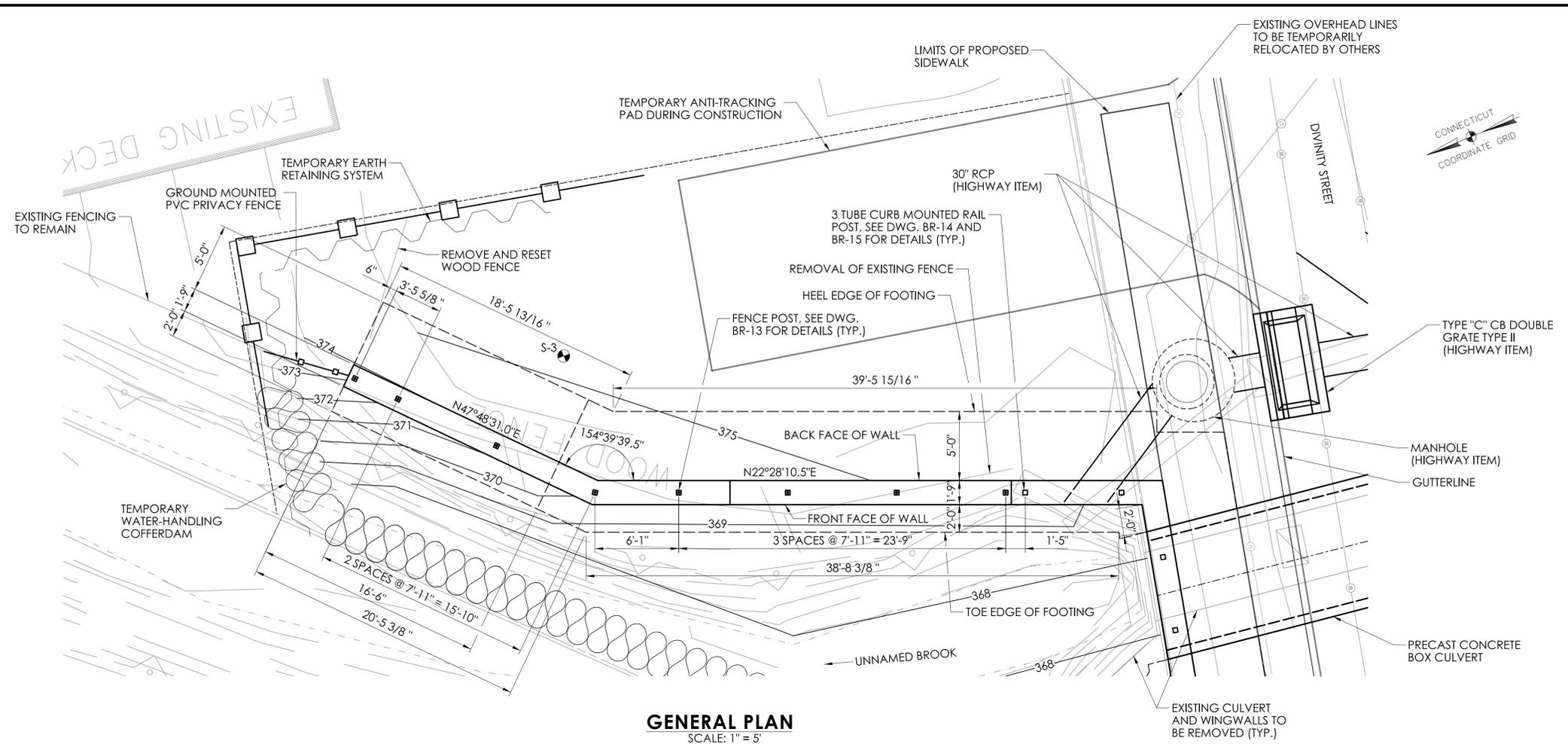
**PARTIAL SECTION THROUGH CULVERT AT EXPANSION JOINT**

SCALE: 1/2" = 1'-0"

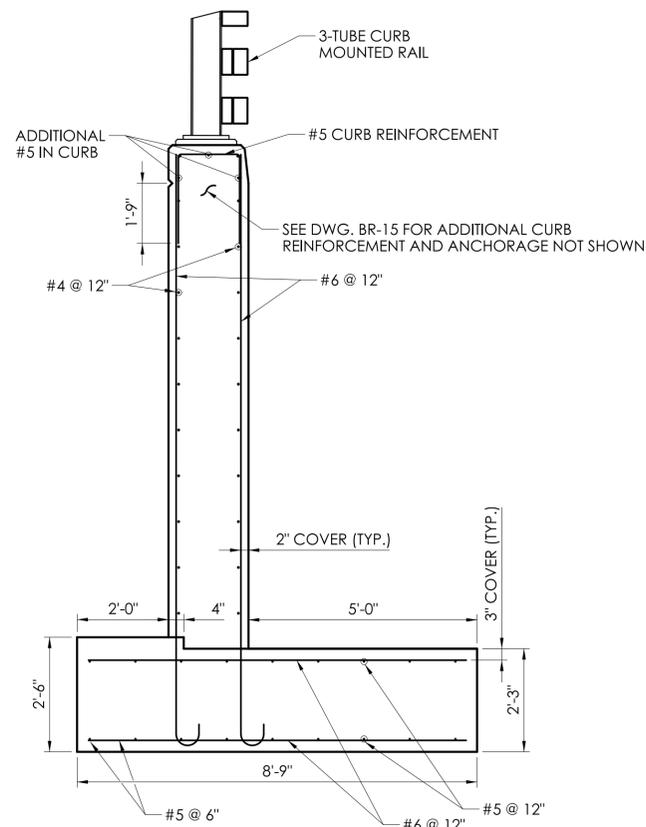


**NOTES:**

1. THE CONTRACTOR SHALL DESIGN, MANUFACTURE AND CONSTRUCT PRECAST BOX CULVERT IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "8' X 6' PRECAST BOX CULVERT" AND THE INSIDE DIMENSIONS, LENGTH AND DETAILS SHOWN ON THESE PLANS.
2. ALL INSERTS OR HOLES CAST INTO THE CULVERT SECTIONS FOR THE SOLE PURPOSE OF HANDLING AND SETTING THE UNITS SHALL BE GROUTED OVER TO A SMOOTH FINISH UPON COMPLETION OF THE WORK.
3. NON-SHRINK GROUT SHALL BE USED TO GROUT THE REINFORCEMENT.
4. THE COST OF FURNISHING AND INSTALLING INSERTS SHALL BE INCLUDED IN THE ITEM "8' X 6' PRECAST CONCRETE BOX CULVERT" AND SHALL BE ONE OF THE FOLLOWING:
  1. STAR EXPANSION INDUSTRIES CORP. TYPE P-35-T
  2. RICHMOND SCREW ANCHOR CO. TYPE LF
  3. DAYTON SUPERIOR CORP. TYPE F-57
 ALL INSERTS SHALL HAVE CORROSIVE RESISTANT COATING.
5. ALL REINFORCEMENT TO HAVE 2" COVER UNLESS OTHERWISE NOTED.
6. ALL INTERIOR JOINTS BETWEEN BOX CULVERT SECTIONS SHALL BE GROUTED AS OUTLINED IN THE SPECIFICATION FOR "8' X 6' PRECAST CONCRETE BOX CULVERT".
7. ALL PRECAST ELEMENT REINFORCING INCLUDING CAST DOWELL BAR SPLICER INSERTS AND THREADED ROD DOWELS AT HEADWALLS SHALL BE INCLUDED IN ITEM FOR "8' X 6' PRECAST CONCRETE BOX CULVERT".
8. STRUCTURE DIMENSIONS ARE BASED ON 8" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.
9. COST OF CUTTING AND SEALING HMA TO BE PAID FOR UNDER ITEM 0202529 CUT BITUMINOUS CONCRETE PAVEMENT (HIGHWAY ITEM).
10. GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY) TO BE PAID FOR UNDER ITEM 0755010 GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY).
11. CRUSHED STONE TO BE PAID FOR UNDER ITEM 0728032 NO. 6 CRUSHED STONE.

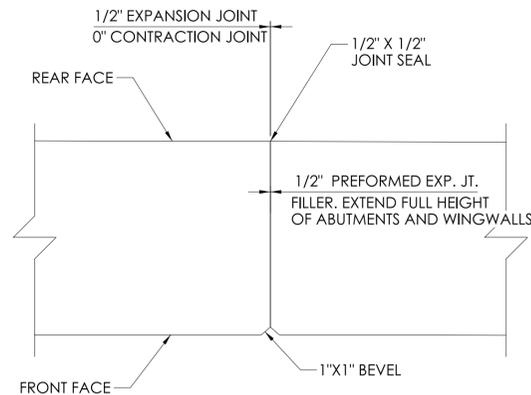


- NOTES:**
- STRUCTURE DIMENSIONS ARE BASED ON 8" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.
  - REMOVAL OF EXISTING STRUCTURE TO BE PAID FOR UNDER ITEM 0974000 REMOVAL OF EXISTING MASONRY.
  - FOR CULVERT CONSTRUCTION STAGING AND WATER HANDLING SEE DWGS. MDS-02 AND MPT-01.
  - CONTRACTOR SHALL FIELD VERIFY THE NEAREST EXISTING FENCE POST TO THE PROPOSED END OF WALL. WIDTH OF THE GROUND MOUNTED PROPOSED FENCE PANEL SHALL BE SIZED TO HAVE NO MORE THAN 4" GAP TO BOTH EXISTING FENCE POST AND WALL MOUNTED FENCE POST.



**WINGWALL SECTION**  
SCALE: 1/2" = 1'-0"

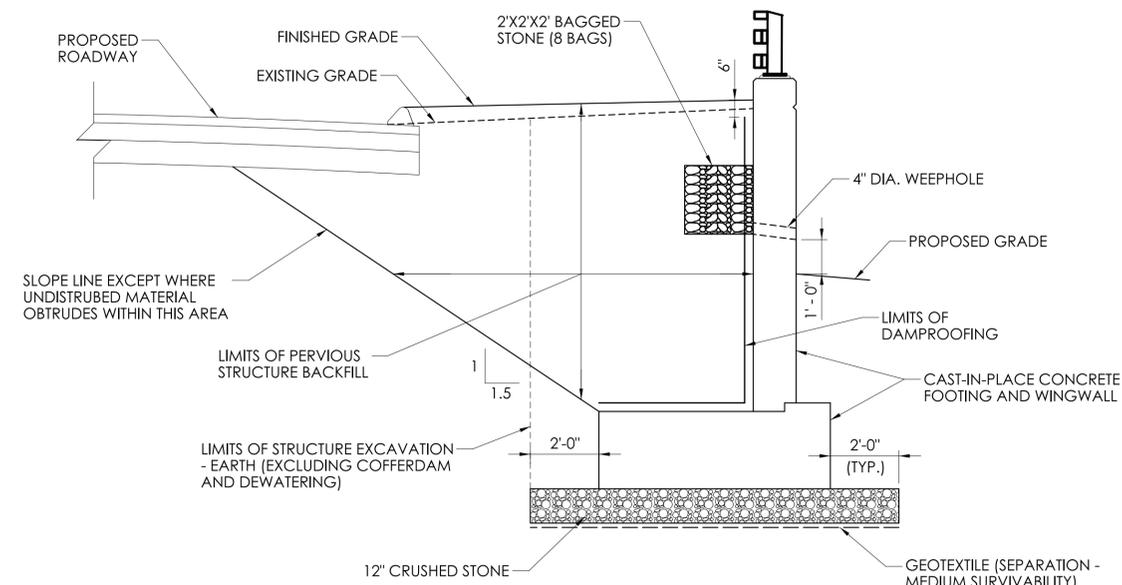
NOTE: CURB REINFORCEMENT SHOWN ONLY APPLICABLE IN LIMITS OF WINGWALL WITH 3-TUBE CURB MOUNTED RAILING, CURB REINFORCEMENT NOT REQUIRED IN LIMITS WITH PVC PRIVACY FENCE



**VERTICAL STEM JOINT DETAIL**  
SCALE: 3/4" = 1'-0"

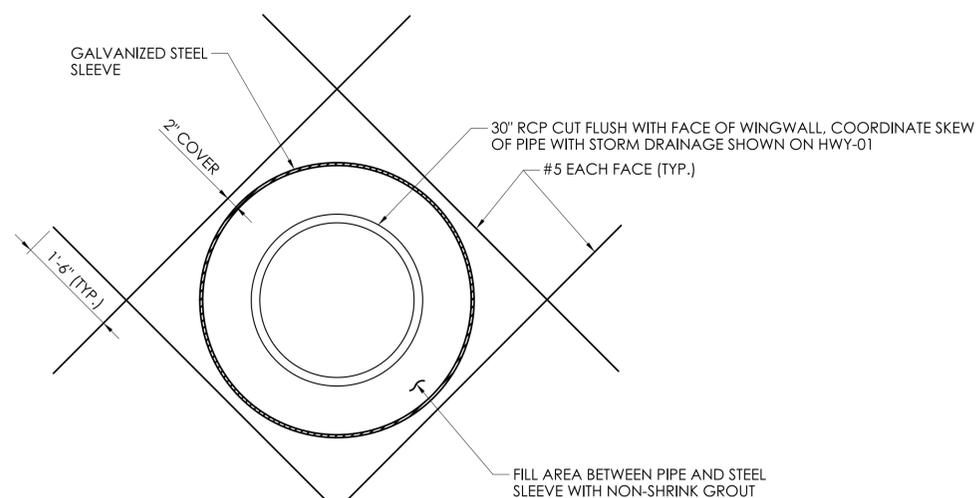
**JOINT NOTES:**

1. JOINT SEAL AND 1/2" PREFORMED EXPANSION JOINT FILLER SHALL BE INCLUDED IN THE ITEM ABUTMENT AND WALL CONCRETE'.
2. JOINT SEAL TO EXTEND FROM TOP OF FOOTING TO TOP STEM.
3. NO REINFORCEMENT SHALL PASS THROUGH EXPANSION OR CONTRACTION JOINTS. REINFORCEMENT SHALL PASS THROUGH CONSTRUCTION JOINTS.

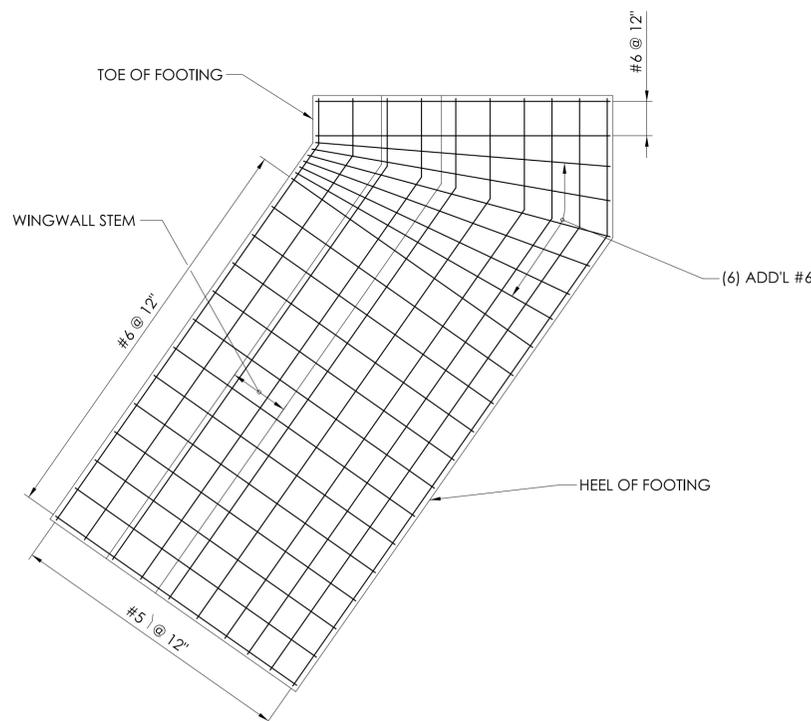


NOTE: GEOTEXTILE (SEPARATION MEDIUM SURVIVABILITY) SHALL NOT BE PLACED WITHIN THE WATERCOURSE

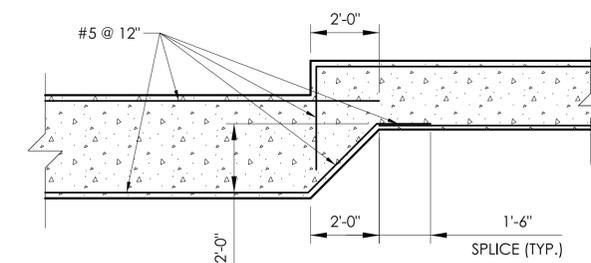
**TYPICAL PAY LIMITS AT WINGWALL**  
SCALE: 1" = 1'-0"



**DETAIL AT RCP THROUGH NORTH WINGWALLS**  
SCALE: 3/4" = 1'-0"



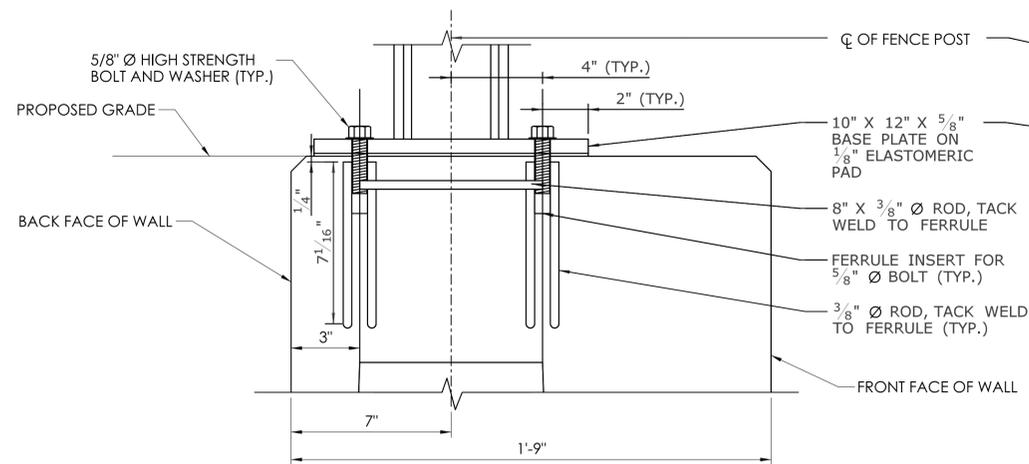
**FLARED FOOTING REINFORCEMENT PLAN**  
SCALE: 3/8" = 1'-0"



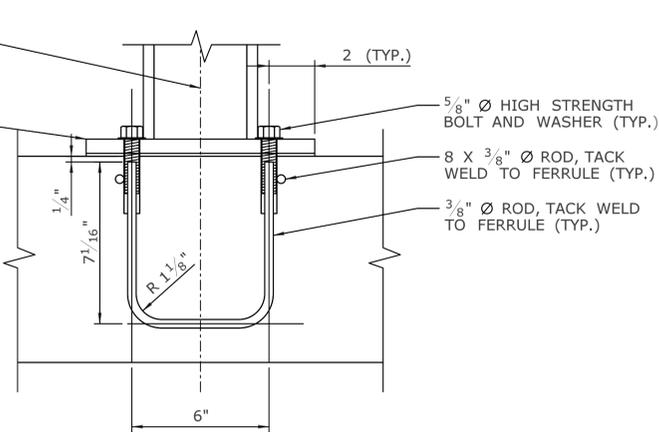
**FOOTING STEP DETAIL**  
SCALE: 3/8" = 1'-0"

**NOTES:**

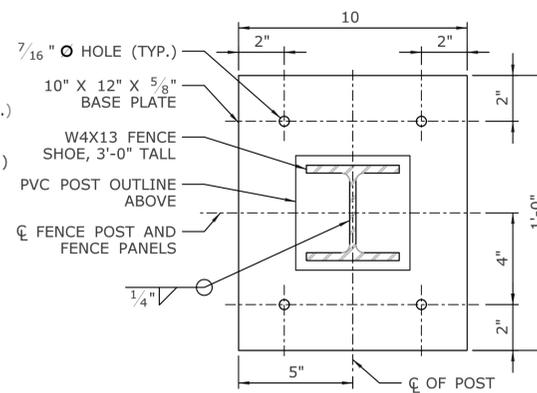
1. DAMPPROOFING TO BE PAID FOR UNDER ITEM 0708001 DAMPPROOFING.
2. GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY) TO BE PAID FOR UNDER ITEM 0755010 GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY).



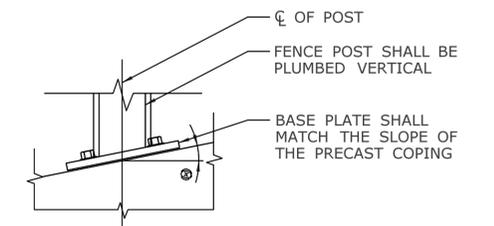
**SECTION - PRESET ANCHORAGE DETAIL**  
SCALE: 3" = 1'-0"



**ELEVATION - PRESET ANCHORAGE DETAIL**  
SCALE: 3" = 1'-0"



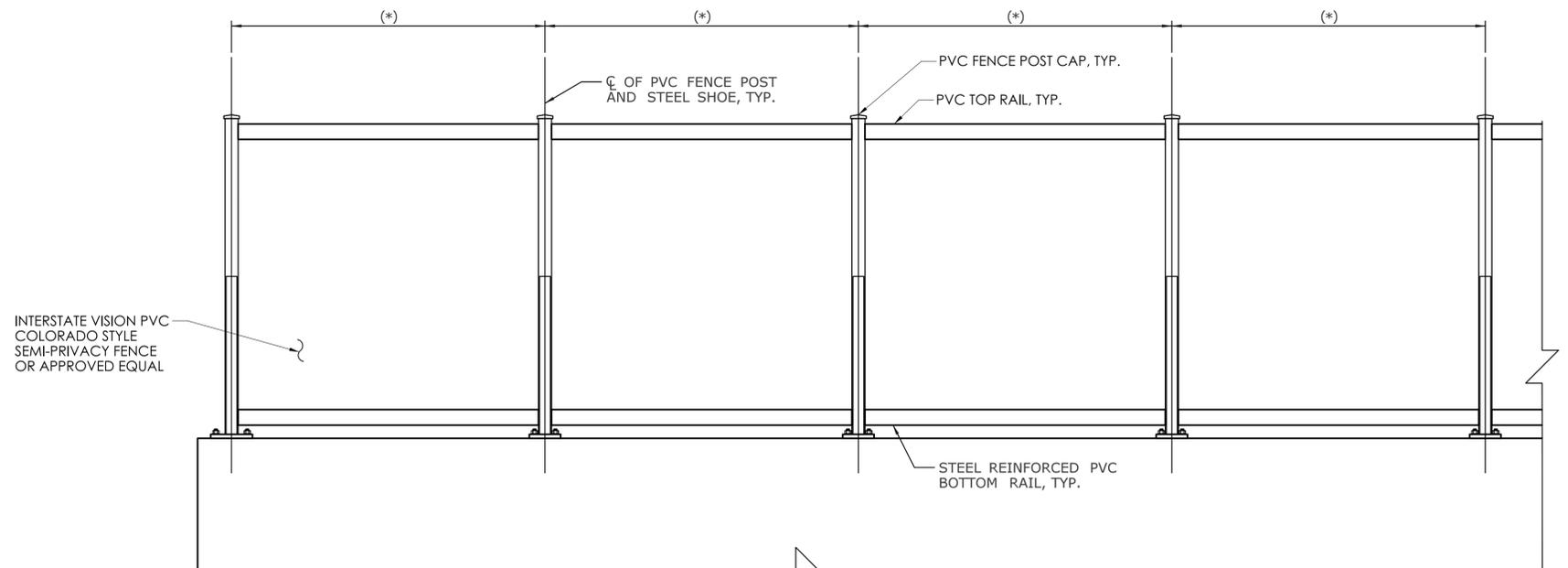
**PLAN - FENCE POST BASE PLATE DETAIL**  
SCALE: 3" = 1'-0"



**ELEVATION - POST DETAIL @ SLOPE**  
SCALE: 3" = 1'-0"

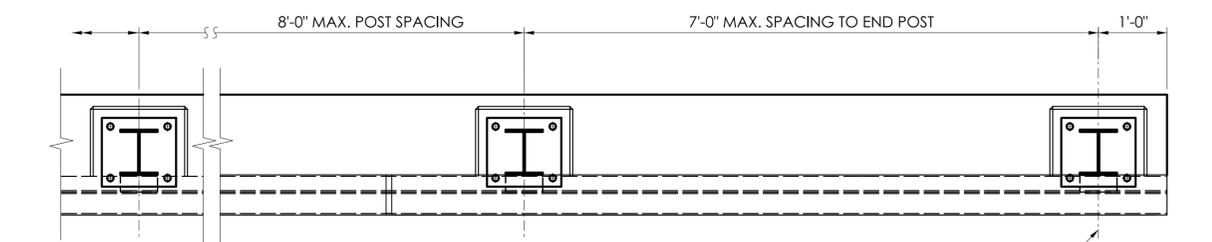
**PRIVACY FENCE NOTES:**

1. THE PRIVACY FENCE SHALL BE DESIGNED TO WITHSTAND HIGH VELOCITY WIND SPEEDS AND WIND GUSTS. STEEL REINFORCEMENT SHALL BE PROVIDED AT A MINIMUM IN THE BOTTOM RAIL.
2. THE PRIVACY FENCE SHALL BE INTERSTATE VISION PVC COLORADO STYLE SEMI-PRIVACY FENCE OR APPROVED EQUAL. THE COLOR SHALL BE CYPRESS OR APPROVED EQUAL. THE FENCE SHALL BE 6 FEET HIGH.
3. THE POST SHOE ASSEMBLY, FITTINGS, AND ANCHORAGES SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
4. ALL POSTS SHALL BE INSTALLED PLUMB AND CENTERED ON TOP OF THE COPING. ALL RAILS SHALL BE INSTALLED PARALLEL TO THE TOP OF THE COPING.
5. THE FABRICATION AND INSTALLATION OF THE PVC PRIVACY FENCE SHALL BE PAID FOR UNDER THE ITEM "PVC PRIVACY FENCE".

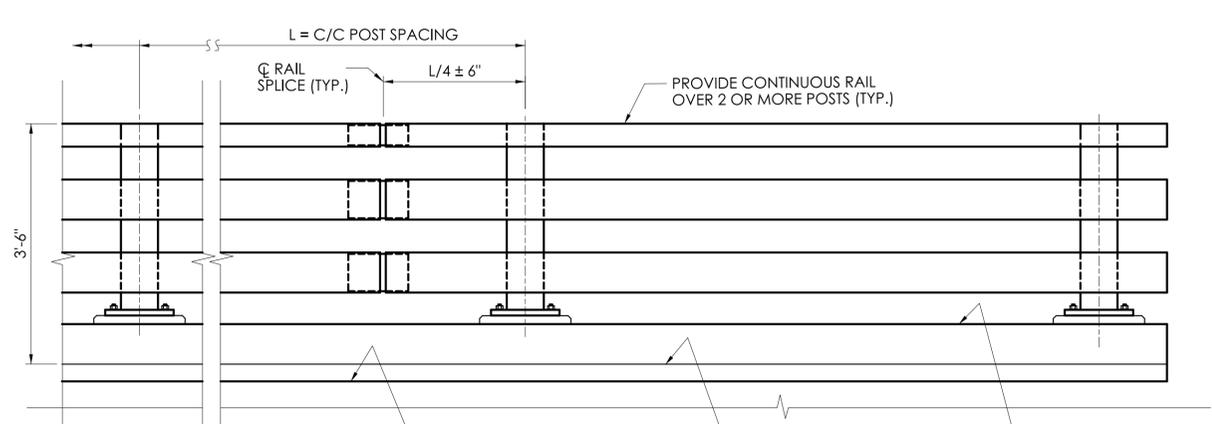


**TYPICAL PROTECTIVE FENCE DETAIL**  
SCALE: N.T.S.

\* = SEE DWG. BR-11 FOR POST LAYOUT

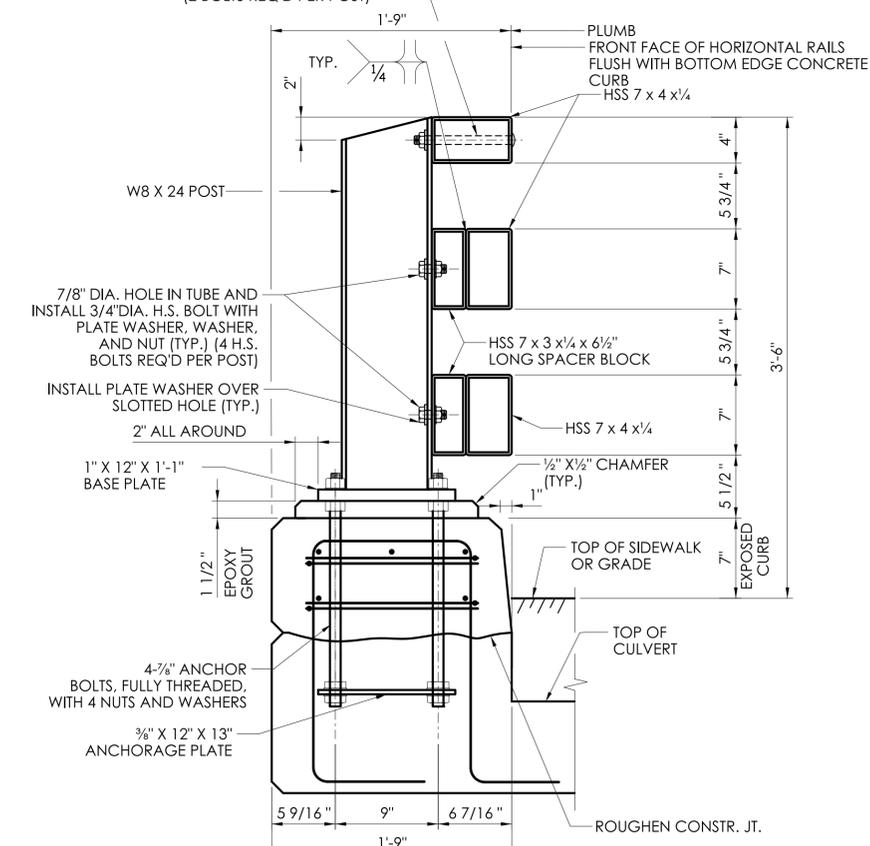


**PLAN**  
SCALE: 3/4" = 1'-0"

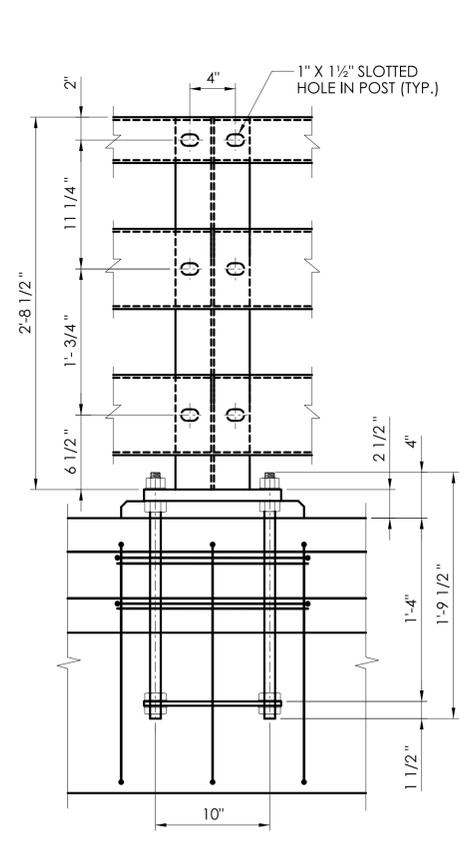


**ELEVATION**  
SCALE: 3/4" = 1'-0"

7/8" DIA. HOLES IN TUBE AND INSTALL 3/4" DIA. DOME HEAD BOLT IN WRENCH SLOTS, WITH PLATE WASHER, WASHER, AND NUT (TYP.) (2 BOLTS REQ'D PER POST)

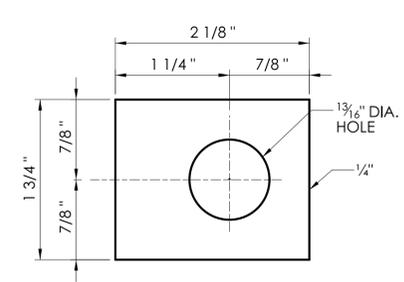


**TYPICAL SECTION AT POST**

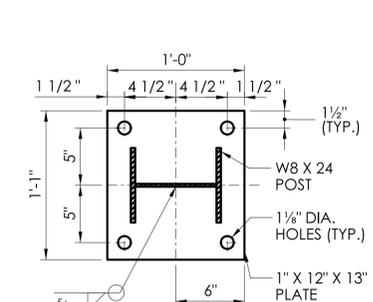


**ELEVATION AT POST**

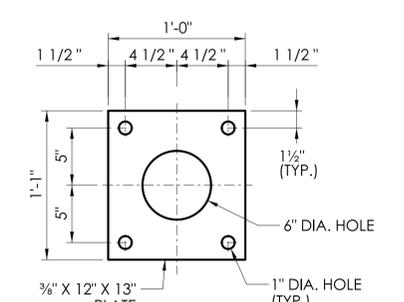
**CURB AND POST DETAILS**  
SCALE: 1 1/2" = 1'-0"



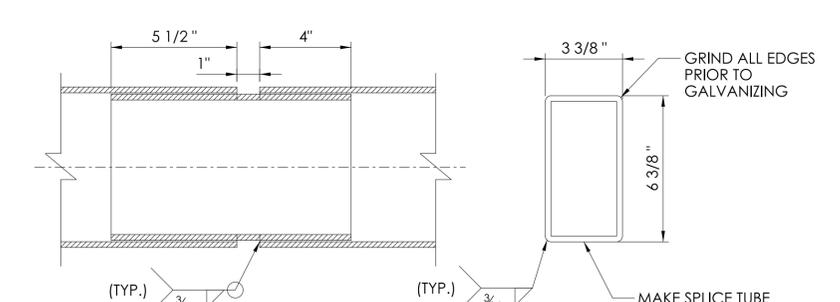
**PLATE WASHER "C"**  
SCALE: FULL SCALE



**BASE PLATE DETAIL**  
SCALE 1 1/2" = 1'-0"



**ANCHOR PLATE DETAIL**  
SCALE 1 1/2" = 1'-0"



**RAIL SPLICE DETAILS**  
SCALE: 3" = 1'-0"

**BRIDGE RAIL NOTES**

CONCRETE FOR THE CURB SHALL BE CLASS PCC03340. THE COMPRESSIVE STRENGTH OF THE CONCRETE, BASED ON TEST CYLINDERS, SHALL BE NO LESS THAN 4,000 PSI PRIOR INSTALLING THE EPOXY GROUT BELOW THE BASEPLATES. PRIOR TO ALLOWING THE RAIL, CURB AND ENDBLOCK TO BE PLACED IN SERVICE FOR THE PROTECTION OF VEHICULAR TRAFFIC, THE COMPRESSIVE STRENGTH OF THE GROUT, BASED ON STRENGTH GAIN OVER TIME LISTED IN THE GROUT MANUFACTURER'S DATA SHEET, SHALL BE NO LESS THAN 5,000 PSI.

THE REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 AND BE HOT-DIP GALVANIZED.

HOLLOW STRUCTURAL SHAPES SHALL CONFORM TO ASTM A500 GRADE C OR ASTM A501, GRADE B.

ALL OTHER STEEL SHALL CONFORM TO ASTM A572, GRADE 50 UNLESS NOTED OTHERWISE.

THE SILICON CONTENT OF THE STEEL USED FOR THE EXPOSED MEMBERS AND PLATE COMPONENTS SHALL FALL WITHIN THE RANGE OF 0 TO 0.04% OR 0.15% TO 0.25%.

ALL STEEL SHAPES, PLATES AND HOLLOW STRUCTURAL SECTIONS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.

THE ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 105. THE NUTS SHALL CONFORM TO ASTM A563, GRADE DH. THE WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329.

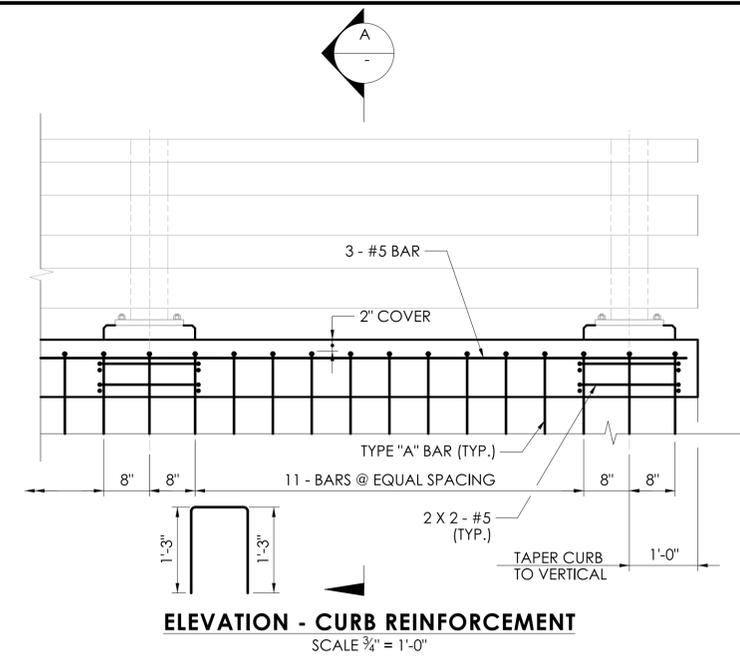
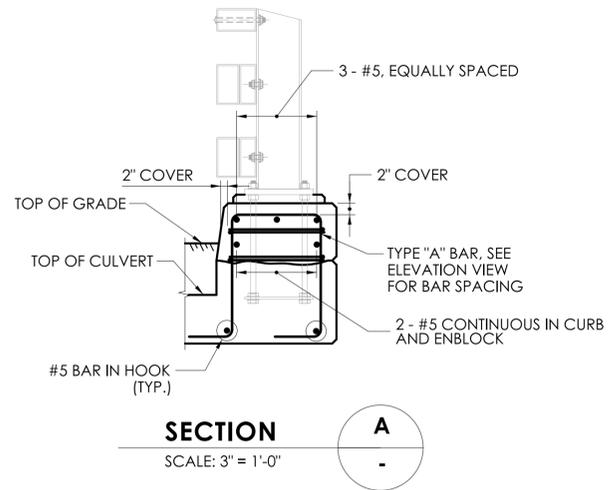
ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325, TYPE 1. NUTS SHALL CONFORM TO ASTM A563, GRADE DH. CIRCULAR, FLAT, HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

DOME HEAD BOLTS WITH WRENCH SLOTS USED FOR THE TOP RAIL SHALL CONFORM TO ASTM F3125 GRADE A325, TYPE 1 OR ASTM A449, GRADE 1. SUBSTITUTION OF DOME HEAD BOLTS WITH BOLTS MEETING DIFFERENT MATERIAL REQUIREMENTS IS NOT PERMITTED. NUTS SHALL CONFORM TO ASTM A563, GRADE DH. CIRCULAR, FLAT, HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

RAIL ELEMENTS SHALL BE FABRICATED TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE. POSTS SHALL BE INSTALLED PLUMB.

ALL BRIDGE RAIL MATERIALS, INCLUDING ANCHOR PLATES, ANCHOR BOLTS, CONCRETE INSERTS, HARDWARE AND EPOXY GROUT, SHALL BE PAID FOR UNDER THE ITEM "3-TUBE CURB MOUNTED BRIDGE RAIL".

DESIGNER/DRAFTER: ZMS	CHECKED BY: JGC	SIGNATURE/BLOCK:	PROJECT NUMBER: L017-0004	DRAWING NO. BR-14
SCALE AS NOTED			PROJECT DESCRIPTION: REPLACEMENT OF DIVINITY STREET CULVERT OVER UNNAMED BROOK	SHEET NO. 04.14
			TOWN(S): BRISTOL	
			DRAWING TITLE: 3-TUBE CURB MOUNTED BRIDGE RAIL DETAILS - 1	



**REINFORCEMENT SPLICE NOTES**

1. THE SPLICE LENGTH FOR THE LONGITUDINAL REINFORCEMENT IN THE CURB AND ENDBLOCK SHALL BE AS FOLLOWS UNLESS DIMENSIONED OTHERWISE:

BAR SIZE	SPLICE LENGTH
#5	2'-4"
2. THE SPLICES SHALL BE ALTERNATED SO THAT 50% OR LESS OF THE LONGITUDINAL BARS ARE SPLICED AT THE SAME LOCATION.

