

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

# HUR-CULVERT-FY2021

FITCHVILLE TOWNSHIP  
GREENFIELD TOWNSHIP  
NEW LONDON TOWNSHIP

## HURON COUNTY



LOCATION MAP

DESIGN DESIGNATION: SEE SHEET 2

**DESIGN EXCEPTIONS**

DESIGN CONTROLLING CRITERIA	LOCATION	APPROVAL DATE
LANE WIDTH	HUR-99-2.60	9/29/2020
GRADED SHOULDER WIDTH	HUR-99-2.60	9/29/2020

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**PROJECT DESCRIPTION**

THIS PROJECT WILL INCLUDE THE REPLACEMENT OF AN EXISTING CONCRETE BOX CULVERT UNDER STATE ROUTE 99 AND AN EXISTING CORRUGATED METAL PIPE ARCH CULVERT UNDER STATE ROUTE 162 USING OPEN CUT METHODS, AND THE FIELD PAVING OF AN EXISTING CORRUGATED METAL PIPE ARCH CULVERT UNDER STATE ROUTE 13.

**EARTH DISTURBED AREAS**

PROJECT EARTH DISTURBED AREA: N/A ACRES (MAINTENANCE PROJECT)  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A ACRES (MAINTENANCE PROJECT)  
NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES (MAINTENANCE PROJECT)

**2019 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

**UNDERGROUND UTILITIES**

Contact Two Working Days Before You Dig

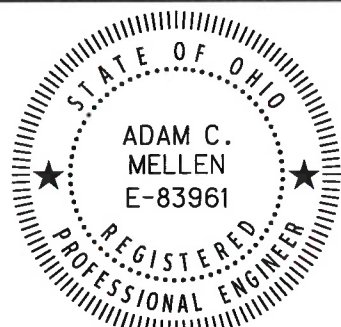


OHIO811, 8-1-1, or 1-800-362-2764 (Non-members must be called directly)

PLANS PREPARED BY:

OHIO DEPARTMENT OF TRANSPORTATION  
DISTRICT THREE ENGINEERING

**ENGINEERS SEAL:**



SIGNED: *Adam C. Mellen*  
DATE: 11/9/2020

**STANDARD CONSTRUCTION DRAWINGS**

BP-3.1	1/17/20	RM-1.1	7/18/14	MT-97.10	4/19/19	TC-41.20	10/18/13
DM-1.1	7/17/20	MGS-1.1	1/19/18	MT-99.20	4/19/19	TC-42.20	10/18/13
DM-4.3	1/15/16	MGS-2.1	1/19/18	MT-101.60	1/17/20	TC-52.10	10/18/13
DM-4.4	1/15/16	MGS-4.2	7/19/13	MT-101.90	7/17/20	TC-52.20	7/20/18
HW-2.1	7/20/18	MGS-5.2	7/15/16	MT-105.10	1/17/20	TC-61.30	7/19/19
HW-2.2	7/20/18						

**SUPPLEMENTAL SPECIFICATIONS**

800 10/16/20  
832 10/19/18

**SPECIAL PROVISIONS**

WATERWAY PERMIT CONDITIONS

DATED 7/20/20

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEETS 11-12.

APPROVED: *[Signature]*  
DATE: 11/10/20 DISTRICT DEPUTY DIRECTOR

APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_ DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E190387

PID NO. 109238

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

HUR-CULVERT-FY2021

1/66

**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES (D104)**

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

**ITEM 611 – FARM DRAINS (D107)**

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE (RIGHT OF WAY) (CONSTRUCTION) LIMITS BY ITEM 611 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLET INTO THE ROADWAY DITCH BY 611 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 611, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING DM-1.1. EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEMS.

PAYMENT FOR ALL LABOR AND MATERIALS WILL BE PERFORMED BY CHANGE ORDER.

**ITEM 605 – AGGREGATE DRAINS (D108)**

AGGREGATE DRAINS ARE TO BE PLACED AT THE FOLLOWING LOCATIONS:

HUR-99-2.60:

STA. 137+00 LEFT AND RIGHT  
STA. 137+75 LEFT AND RIGHT

HUR-162-22.85

STA. 1206+25 LEFT AND RIGHT  
STA. 1206+75 LEFT AND RIGHT

**ITEM 202 – STRUCTURE REMOVED, AS PER PLAN (HUR-99-2.60)**

WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED UPON RECEIVING PERMISSION FROM THE ENGINEER, INCLUDING BUT NOT LIMITED TO, EXISTING HEADWALLS AND CONDUIT.

**ITEM 611 – FIELD PAVING OF EXISTING PIPE, AS PER PLAN (103" X 71" CMP ARCH) (HUR-13-6.01)**

THIS ITEM SHALL BE USED TO REMOVE ALL DEBRIS, SEDIMENT, AND MAINTENANCE TREATMENTS LOCATED WITHIN THE PIPE. FILL ANY VOIDS WITH CONCRETE PRIOR TO FIELD PAVING. PERFORM SUBSEQUENT FIELD PAVING AS PER CMS 611 EXCEPT AS SHOWN ON CULVERT DETAIL SHEET. SEE CULVERT DETAIL SHEET FOR DETAILS REGARDING THE HEIGHT OF THE FIELD PAVING.

PAYMENT FOR ALL OF THE ABOVE SHALL BE MADE AT THE UNIT PRICE PER FOOT FOR THE ABOVE ITEM WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**ITEM 254 – PAVEMENT PLANING, ASPHALT CONCRETE (3.0" DEEP)**

THE INTENT OF THE PLANING IS TO MILL 3 INCHES AT THE CENTER OF PAVEMENT IN THE LOCATIONS INDICATED ON THE PLANS. CONTROL PAVEMENT SLOPE AS INDICATED ON THE PLANS. CONTROL THE MILLING DEPTH FROM THE CENTER OF THE PAVEMENT.

MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE PAVEMENT PLANING, ASPHALT CONCRETE. PAYMENT WILL BE MADE AT THE UNIT BID PRICE PER SQUARE YARD OF ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE.

**ITEM 611 – 72" CONDUIT, TYPE A, AS PER PLAN (HUR-99-2.60)**

CONDUIT MATERIALS SHALL BE LIMITED TO THE FOLLOWING:  
706.02, 748.06 (0.500), 707.02 (0.138) ALUMINIZED WITH CONCRETE INVERT PAVING, 707.04 (0.138) WITH CONCRETE INVERT PAVING, 707.35, 707.75, SS 938.

**ITEM 442 – ASPHALT CONCRETE SURFACE COURSE, 9.5MM, TYPE A (448), AS PER PLAN (PG64-22)**

REQUIREMENTS OF 442 APPLY EXCEPT AS FOLLOWS:  
MIX DESIGN: FOR Ndes USE 50 GYRATIONS, FOR Nmax USE 75 GYRATIONS.  
MINIMUM TOTAL PG BINDER CONTENT IS 6.0 PERCENT.  
USE A PG 64-22 BINDER.  
MAXIMUM RECLAIMED ASPHALT CONCRETE PAVEMENT IS 20 PERCENT.  
WHEN AN AGGREGATE SOURCE IS SPECIALLY DESIGNATED WITH AN SR ON THE AGGREGATE GRAVITY LIST DO NOT USE THE AGGREGATE EXCEPT AS ALLOWED FOR MEDIUM TRAFFIC IN THE GUIDELINES FOR MAINTAINING ADEQUATE PAVEMENT FRICTION IN SURFACE PAVEMENT.  
QUALITY CONTROL: DO NOT PERFORM Nmax IN QUALITY CONTROL TESTING. DO NOT TAKE EXTRA ASPHALT BINDER SAMPLES AS OUTLINED IN CMS 442.05.

**LOCATIONS OF GUARDRAIL**

THE GUARDRAIL PROTECTION PROVIDED IN THIS PLAN SHALL BE LOCATED IN THE FIELD TO ASSURE THAT THE INSTALLATION WILL AFFORD THE MAXIMUM PROTECTION FOR TRAFFIC. THIS LOCATION SHALL BE POSITIONED AS FAR AS POSSIBLE FROM THE EDGE OF PAVEMENT WHILE MAINTAINING PROPER GRADE IN FRONT OF GUARDRAIL AS PER STANDARD DRAWINGS AND PLAN DETAILS.

**SUGGESTED SEQUENCE OF GUARDRAIL WORK**

1. GUARDRAIL WORK IS TO BEGIN AFTER THE CULVERT WORK IS COMPLETED AND THE 304 MATERIAL IS PLACED ON THE SHOULDER.
2. CONSTRUCT THE GUARDRAIL RUN.
3. INSTALL BARRIER REFLECTORS.

**ITEM 606 – ANCHOR ASSEMBLY, MGS TYPE E**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE MGS TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

THE CONTRACTOR MAY USE A SALVAGED EXTRUDER WHEN ASSEMBLING THE ITEM 606 ANCHOR ASSEMBLY, MGS TYPE E. ALL WELDS ON THE EXTERIOR OF THE SALVAGED EXTRUDER SHALL NOT BE DAMAGED AND THE FEEDER SHUTE SHALL NOT BE BENT.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

**ITEM 659 – SEEDING AND MULCHING (E101)**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

HUR-13-6.01 (02/STR/CV):

659	COMMERCIAL FERTILIZER	0.19	TON
659	LIME	0.28	ACRE
659	WATER	7.46	M GAL
659	REPAIR SEEDING AND MULCHING	67	SQ YD
659	INTERSEEDING	67	SQ YD
659	TOPSOIL	150	CU YD
659	SOIL ANALYSIS TEST	2	EACH
659	SEEDING AND MULCHING	1348	SQ YD

HUR-99-2.60 (01/S<2/CV):

659	COMMERCIAL FERTILIZER	0.30	TON
659	LIME	0.44	ACRE
659	WATER	11.84	M GAL
659	REPAIR SEEDING AND MULCHING	107	SQ YD
659	INTERSEEDING	107	SQ YD
659	TOPSOIL	237	CU YD
659	SOIL ANALYSIS TEST	2	EACH
659	SEEDING AND MULCHING	2138	SQ YD

HUR-162-22.85 (02/STR/CV):

659	COMMERCIAL FERTILIZER	0.21	TON
659	LIME	0.30	ACRE
659	WATER	8.07	M GAL
659	REPAIR SEEDING AND MULCHING	73	SQ YD
659	INTERSEEDING	73	SQ YD
659	TOPSOIL	162	CU YD
659	SOIL ANALYSIS TEST	2	EACH
659	SEEDING AND MULCHING	1458	SQ YD

**ITEM 659 – SEEDING AND MULCHING (E101) (CONTINUED)**

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS. QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

CALCULATED  
ACM  
CHECKED  
KRB

GENERAL NOTES

HUR - CULVERT - FY2021

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CALCULATED  
ACM  
CHECKED  
KRB

CULVERT DETAILS  
HUR-99-2.60

HUR-CULVERT-FY2021

EXISTING STRUCTURE	
TYPE:	STONE BOX CULVERT WITH CONCRETE EXTENSIONS
CULVERT FILE NUMBER:	1816955
SPANS:	62" SPAN X 48" RISE
SKEW:	0°
ALIGNMENT:	TANGENT
DATE BUILT:	1932
DISPOSITION:	CRITICAL
PROPOSED STRUCTURE	
TYPE:	REINFORCED CONCRETE CIRCULAR PIPE, 706.02
CULVERT FILE NUMBER:	1981276
DESIGN SERVICE LIFE:	75 YEARS
DIMENSIONS:	72" DIAMETER
ROADWAY:	26'-0" TREATED SH. TO TREATED SH. (38'-0" F/F RAIL)
SKEW:	15° R.F.
ALIGNMENT:	TANGENT
STREAM:	ABRASION LEVEL = 1 pH = 8.3
COORDINATES:	LATITUDE N 41° 04' 41" LONGITUDE W 82° 43' 03"

**HYDRAULIC DATA**

DRAINAGE AREA =	0.54 SQ. MILES		
Q (25) =	197 CFS	V (25) =	10.96 FT/S
Q (100) =	269 CFS	V (100) =	11.94 FT/S

**NOTES**

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

EXISTING STRUCTURE TO BE REMOVED. ROAD TO BE CLOSED DURING CONSTRUCTION AND TRAFFIC TO BE DETOURED.

PROPOSED GUARDRAIL NOT SHOWN ON CULVERT PROFILE FOR CLARITY.

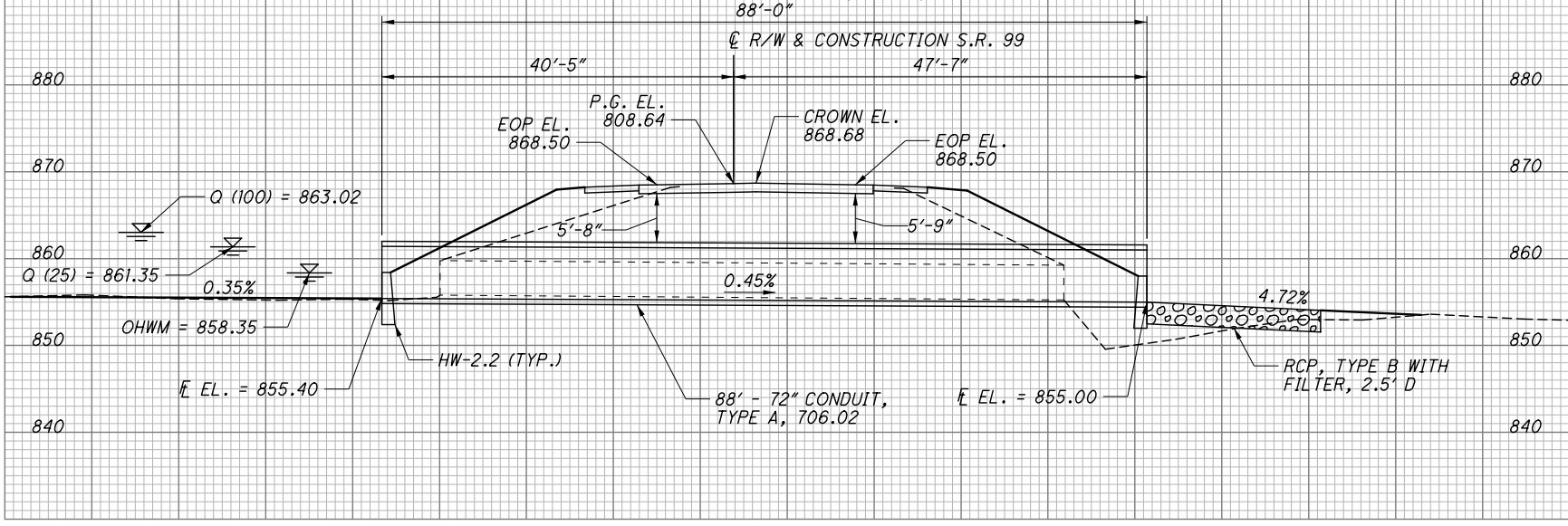
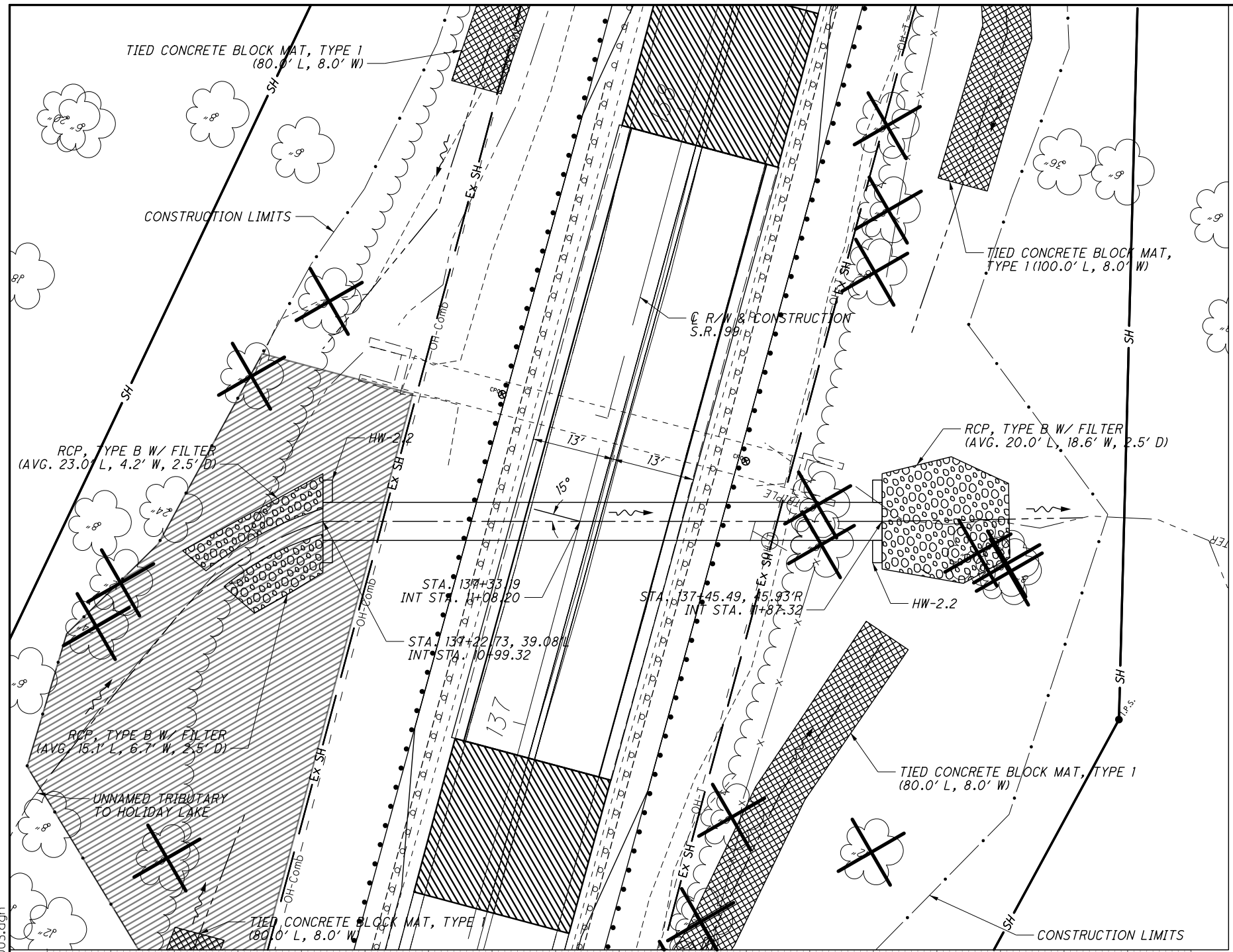
SEE ROADWAY SUBSUMMARY SHEET FOR ROADWAY AND PAVEMENT QUANTITIES.

**LEGEND**

- ROCK CHANNEL PROTECTION, TYPE B W/FILTER
- TIED CONCRETE BLOCK MAT W/ TYPE 1 UNDERLAYMENT
- RESURFACING
- WETLAND A
- CLEARING AND GRUBBING

ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION
201	11000	LS		CLEARING AND GRUBBING
202	11001	LS		STRUCTURE REMOVED, AS PER PLAN
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING
601	21050	303	SY	TIED CONCRETE BLOCK MAT WITH TYPE 1 UNDERLAYMENT
601	32100	53	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	20000	5.6	CY	CONCRETE MASONRY
611	26001	75	FT	18" CONDUIT, TYPE C
611	26001	88	FT	72" CONDUIT, TYPE A, AS PER PLAN
611	98510			EACH CATCH BASIN, NO. 2-3

ALL QUANTITIES CARRIED TO GENERAL SUMMARY (01/S<2/CV)



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